

COMPUTERWORLD

THE NEWSWEEKLY FOR THE COMPUTER COMMUNITY

Weekly Newspaper Second-class postage paid at Chicago, Illinois

Vol. IV, No. 11

March 18, 1970

Price: \$9/year



Debris from explosion litters desk in IBM office at 425 Park Avenue in midtown Manhattan. The IBM building was one of the three hit by explosions on Thursday, March 12. [Worldwide Photo]

'Revolutionary Force' Bombs IBM's Offices

NEW YORK A bomb blast ripped through the men's room of the eastern regional headquarters of IBM's data processing division here last Thursday, causing extensive damage to two offices, but no personal injuries.

The blast, which came at 1:36 a.m., was detonated in a men's room on the 17th floor of the firm's offices at 425 Park Ave. and apparently was part of a coordinated bombing effort which also included blasts at Society Model headquarters and in the Schwab Electric offices in the town of Elmhurst and Elmhurst, N.Y.

Minutes before the blast all employees at the three buildings had been evacuated after the police received an anonymous telephone call warning them of the bombs. At the time at least eight IBM employees were in the building.

In a letter to the United Press International offices here, postmarked one hour before the first of the three explosions, a group called "Revolutionary Force" claimed "credit" for the bombings and said that the firms were chosen because of their involvement in defense contract work. An IBM statement issued after

the explosion termed the bombings "deplorable" and said "it is a company to attempt to express its viewpoint by selling or refusing to sell its products to our own government is clearly wrong."

IBM could not at the time give an estimate of the cost of the explosion or a date for reopening offices in the building. All the employees normally housed there had been temporarily transferred to other offices in the New York City area and operations are continuing normally, a spokesman said.

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National Academy Scholars To Investigate Data Banks

By Michael Merritt

Continued from Page 1

WASHINGTON, D.C. The National Academy of Sciences has begun an investigation into the extent of computer data banks and their impact on individual freedom and the process of law.

A panel of 25 businessmen, scholars, government officials, lawyers, and computer professionals will act as advisers to the study. Among them are Nicholas Katzenbach, former U.S. attorney general and now a vice president of IBM, lawyer Ralph Sadler and Anthony G. Oettinger of the National Academy and professor of applied mathematics at Harvard.

The principal investigator is Dr. Alan I. Weston, professor of public law and government at Columbia University, who has put together a research staff to conduct the two-and-a-half year study.

The Russell Sage Foundation is financing the project's \$149,500 budget.

Plan of Action

Weston said that one problem concerning regulation of data banks is that "no-one has systematic information on their extent or effect." Though the study is without any official power, it will for the first time provide information to "describe the legal, judicial, administrative, technological, and organizational measures that might be taken to assure the proper balance" between efficient data use and individual rights.

The advisory panel will meet with Weston and his staff late this month to discuss a questionnaire. Weston will send to organizations across the country with data banks.

Weston and his staff will then follow up this questionnaire with on-site visits and meetings with the panel to discuss the results.

For the study group will prepare a draft report to submit to the committee in June, 1971.

One of the purposes of the study will be to

determine whether computers are changing the patterns of data collection.

Almost Out of Time

Unrehearsed and unprepared use of data banks may make individual privacy and due process virtually meaningless, Weston said in an interview. He asserted that unless safeguards are established within the next five years, the situation may be impossible to regulate.

There are no laws or precedents to support an individual's right to see, contest, change, or eliminate any fact about him in a data bank, Weston noted.

The study will cover hundreds of public and private computerized dossier files, including the FBI's National Crime Information Center, police intelligence files, the Army Intelligence System, credit investigating firms, hospitals, unions, churches, motor vehicle bureaus, and universities. Weston said, "Almost inevitably, transferring information from a manual file to a computer triggers a threat to civil liberties and privacy, to a man's very humanity, because access is so simple."

Computer Professionals

Of the 23 advisers, strictly two are computer professionals, speaking only. They are Roy S. Sattis, vice president of Computer Sciences Corp., and Dr. John R. Pierce, executive director of the research communication sciences division of Bell Telephone Laboratories. There are two scholars with computer credentials: Oettinger, who is also chairman of the computer science and engineering board of the National Academy of Sciences, and Robert M. Evans, 1964 Professor of Engineering at MIT, and chairman of the Institute's Committee on Privacy of Information.

Evans said that no matter how strict the technical or legal safeguards, all computer data banks were

(Continued to Page 4)

Ohio Bell Agrees to Withdraw Isal Plan

By Ronald A. Frank

CW Technical News Editor

COLUMBUS, Ohio In a move described as a "major victory for the computer services industry," Ohio Bell Telephone Co. has rescinded a proposal that could have increased costs to time-sharing users by IBM.

The decision to withdraw proposed Time-Sharing System Access Time (Isal) designation from intrastate lines being utilized by time-sharing customers was made by Ohio Bell after negotiations with several time-sharing firms that had fought to block the plan.

The Isal proposal was filed last summer by Ohio Bell before the state public utilities commission as part of an overall \$80 million rate increase request. Under the proposal, all computer-connected lines being used by time-sharing companies would have been designated as Isal circuits with accompanying rate increases that in some cases ranged as high as 400%.

In anticipation of gaining approval for the Isal concept, Ohio

Bell leveled increased charges to selected time-share firms including ComShare, Inc., and G. Under State special assembly tariff provisions.

These companies together with the Computer Time-Sharing Services Co. (CTSS) of Maford, the U.S. Department of Defense, and other affected companies, objected before the utilities commission and officially intervened to block the rate increase request.

Since the Isal proposal was part of the overall rate increase package, Ohio Bell was unable to collect any of the increased revenue until the entire rate package was commission approval. This approval was contingent on resolving the Isal question to the satisfaction of all parties.

The agreement to withdraw, as filed last week with the commission, included provisions to "delete any reference to Information System Access Lines" and "to delete any reference to exchange reclassifications."

The agreement further stated "No party hereto will appeal to

the Supreme Court of Ohio or directly or indirectly try to procure a review, rehearing, or reconsideration [of the decision]."

In referring to the decision as a victory, John Duffek, communications manager of ComShare and chairman of the CTSS,

"communications group," said "although this was a local issue, the action by Ohio Bell cannot but help influence future decisions by Bell companies in other states."

He added that the effect of the decision will be to eliminate the

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Afips Changes Mind, Will Work for Computer Year

By Drake Lundell

CW New York Bureau

NEW YORK The major computer organizations now appear to be joining with AFIP over the issue of a National Computer Year, despite earlier indications of non-support for the idea.

Although AFIPs earlier told CW [CW, Feb. 11, 18] that it did not plan to send a representative to the initial coordinating conference for the proposed National Computer Year, the organization now "will definitely be represented" at the meeting, a

spokesman told CW recently.

Whether the AFIP participation would be active or merely on an observer status could not be learned. A meeting of the AFIPs board at the Spring Joint Computer Conference will probably discuss the issue and decide whether its representative would be official or not.

The AFIP spokesman also said that consent members of AFIPs would be "encouraged" to participate in the planning for the year. These include the

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Adds S/3 Flexibility

DEC Adds Business
Oriented Language

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POSTMASTER: CHANGE OF ADDRESS FORM 3579 to be sent to Computerworld Circulation Dept., 797 Washington, New York, Mass. 02190.

Former Students, Teacher Complain

False Advertising Laid to Texas DP School

By Edward J. Bridgman
Covington, La.

TYLER, Texas - The consumer credit commissioner of Texas has obtained an injunction against the "deceptive practices" of the local office of Data Processing Industries (DPI).

Initiated by eight former students of the programming school, the petition alleges that the Houston-based firm falsely advertises that "it has some connection" with IBM, that it has adequate facilities, qualified instructors, and that it will provide some computer-laboratory time for programming students.

The firm denies any "deceptive business practices," but DPI law-

yers said that all advertising for the Tyler branch, the only one named in the injunction, was halted until the "entire advertising picture" could be assessed. The company lawyers would not comment as to whether the advertising was stopped as a direct result of the injunction.

"Preying on the Ignorant"

Roger Wilgus, a former instructor with the Tyler branch, said he resigned after three weeks because the company was "preying on the ignorant."

He accused DPI of "inflating" the results of a programmer's aptitude test so that prospective students would enroll.

One former student said the course costs \$895, plus \$55 for teaching materials if a student cannot come up with the tuition in advance.

The teaching materials, said Wilgus, were Honeywell-programmed texts self-instructing in D and IF Cobol, and the same type of self-instructing books for IBM's 360 RFG.

One of the teachers, alleges Wilgus, had just completed the 18-week course and had no other computer experience. Wilgus himself is director of data processing for Mother Frances Hospital in Tyler. He said that DPI officials approached him and offered him the teaching job.

A former student of the Tyler branch said that Wilgus is the only teacher "who really put something into it."

The student, a housewife, told of a quizzing teacher who did no teaching, but referred students to the self-instructing texts, if they had any questions.

No Teacher Qualifications

Teachers, said Wilgus, are not required to have a degree or a

teaching certificate, or any experience either. All that is required, he said, is that they be "in the field."

Wilgus said that a graduate of the DPI course qualified as "being in the programming field."

Officials at Honeywell said that all their teachers "meet or exceed" the DPMA standards, which require a degree plus at least two years of programming experience.

They said that their texts are available for sale, but that their value could be enhanced when used with other reference material.

IBM indicated that it had "no control" over the use of its texts after they are sold.

IBM did say that its instructors "all have had hands-on computer training, which we consider necessary" to instruct a course.

An IBM spokesman said that teacher guidelines used in IBM-taught courses are not sold.

Wilgus said that DPI did not provide any curriculum outline, teacher guidelines, or even a class monitor for the first session.

Peripheral Guidelines Set For U.S. Government Users

WASHINGTON, D.C. - The world's largest computer user, the U.S. Government, has established guidelines for its departments and agencies planning to purchase peripheral equipment from independent manufacturers.

The guidelines were announced as part of a project undertaken by the Air Force and the Navy to replace IBM manufactured tape and disk units with plug-to-plug compatible unit manufactured by independents.

Although the guidelines serve as a beginning when evaluating independently manufactured equipment, they do not answer all the questions that will arise with the use of such equipment, industry sources said.

The initial requirement for the equipment, as announced by the Navy, is that it be plug-to-plug compatible without any hardware or software modifications, changes or alterations. It also must be more economical than the equipment it replaces, including maintenance.

To help judge the economy of the equipment, it must be guaranteed to meet or exceed the performance of the IBM equipment being replaced. The demand for the guarantee of performance places the burden of proof on the independent manufacturer.

To test the manufacturers' claims, the Navy will require a 30-day test of the proposed equipment. During the tests, which will be conducted at each site the equipment will be in use, the new peripherals will have to operate at an average effectiveness of 90% or more.

This test is seen by some as a way to guarantee every piece of equipment before it is accepted. Instead of a benchmark, where

one piece of equipment is tested and then other units in the same line ordered for the needs of the agency, this type of procurement assumes that each and every piece of equipment lives up to the manufacturers' claims and the government specifications.

The replacement equipment must not require any additional support facilities, such as air conditioning, electrical requirements, facilities, or space, under the Navy plan. In addition, it has to operate without any additional operator training.

The other guidelines indicate that cables must be bid with all equipment, and that controllers must be bid if the proposed replacement equipment will not interface with the installed controllers. On-site maintenance is required at all installations with more than 10 units of one type.

Observers say the real problems with the use of independently manufactured peripheral equipment are in the maintenance area.

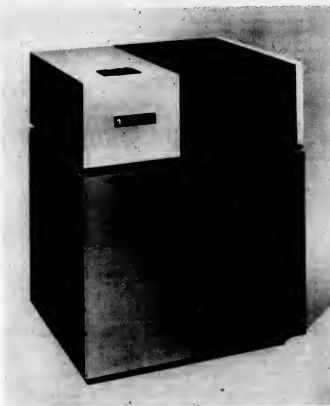
This doesn't solve all the maintenance problems, most industry sources say.

The independent firms bidding on the equipment will also have to be able to provide one hour on-call maintenance 24 hours a day, seven days a week. The replacement equipment must not require any operator training and controllers will have to be bid with the equipment when the replacement equipment will not interface directly with the installed controllers.

The Navy and Air Force experiment in the purchase of independently manufactured peripherals equipment may serve as a guideline on future problems to be found with mixed computer systems.

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National Academy to Investigate Data Banks

(Continued from Page 1)
"eventually penetrable gap unsafe."

Westin added that the effect of permanent dosimeters is to make it increasingly hard for people to escape from their past and obtain a second chance.

Some Hope
Nevertheless, he said, two bills now before Congress, and the New York State Legislature stand a "good chance" of being passed. Both bills grant individuals the right to see and challenge the information held by credit, licensing, and employment agencies.

The House Banking and Currency Committee will begin hearings this week on the "Fair Credit Reporting Act," which the Senate passed last November. The New York State Senate passed the "Credit Data Reporting Act" March 4, and it now faces action in the New York Assembly.

Others on the 23-member advisory panel are:
Dr. Edgar S. Dunn Jr., economist and research associate with Resources for the Future; James Farmer, assistant secretary, Department of Health, Education and Welfare;
Rep. Cornelius E. Gallagher, (D-N.J.), chairman of the House Subcommittee on Invasion of Privacy.

Nathan L. Jacobs, associate justice of the New Jersey Supreme Court.
Dr. John H. Knowles, general director of the Massachusetts General Hospital.
Dr. Arthur R. Miller, professor of law, University of Michigan.
Dr. George A. Miller, chairman of the department of physiology, Rockefeller University, New York City.
Dr. Malcolm C. Moos, president of the University of Minnesota, Minneapolis.
Dr. Eshelbacher, former director

of policy and planning of the Ford Foundation.
Judge Constance Baker Motley, United States District Court, New York City.
Arthur Naftalin, professor, department of public affairs, University of Minnesota and former mayor of Minneapolis.
Rep. Ogden R. Reid, (R-West-

chester, N.Y.)
Lee Rieker, vice-president of personnel, Con-Products Co.
Dr. Richard Ruggles, professor, department of economics, Yale University.
William Spencer, executive vice-president, First National City Bank.
Roderick O. Symmes, director

of data systems development, U.S. Department of Housing and Urban Development.
Mrs. Jacqueline B. Wexler, president of Hunter College.

Dr. Robert C. Wood, chairman of the political science department of MIT and director of the Joint Center for Urban Studies, Harvard University and MIT.

Adapso Predicting Bell Conflict

LOS ANGELES — "The next major issue to come to a head quickly is telephone company entry into the service bureau industry. Our position is that we do not believe it should be permitted for any constitutional monopoly to enter into a competitive business," predicted J. L. Roy, president of Randolph Data Services Inc., and president of the Association of Data Processing Service Org. (Adapso), at a recent meeting here.

On March 3, Adapso won a rout in a battle to stop banks from competitive service bureau operations when the Supreme Court upheld its right to sue the U.S. Comptroller of the Currency for permitting national banks to enter the data processing service field. This was a reversal of a lower court decision and cleared the way for the suit. Also in the works is legislation to prohibit specifically one-bank holding companies from entering into the activity. "If we successfully passed the House and is now before the Senate Banking and

Currency Committee. The case was instituted by Adapso and Data Systems, Inc., of Minneapolis, against the U.S. Office of National Bank and Trust Co. of St. Paul and the Comptroller of the Currency.

On the telephone company issue, Roy said that Adapso's original position was that if telephone companies set up subsidiaries for the work similar to IBM's SBC, this would not violate competitive principles. It has since concluded that as service bureaus, particularly those in the time-share field, are so dependent upon lines, they would be in the position of competing with their supplier.

He said that Adapso supplied a position paper to the Canadian Government group that was studying the telephone company-service bureau relationship, and in part based upon its information, Canada ruled two years ago that telephone companies would not be able to enter the business.

Roy also observed that the

Bank of America, for example, has formed subsidiaries for leasing, facilities management, and software services and is just waiting for a one-bank holding company rating before moving ahead. He said this is a familiar pattern throughout the country and it is only a matter of time before it is into the time-share business.

Members of Adapso were not particularly concerned about the growth rate of the 20%-30% that service bureaus were favored in a recession, that the rate of new entrants might decline, a little, and the rate of under-capitalized entries will decline, but otherwise the industry will weather it well. They predict a continuation of the 20%-30% growth rate in volume of business for service bureaus and a 60%-80% growth rate in volume of time-share business.

Officials of Adapso concluded that one of the greatest needs of the data processing industry is a separate data communications network.

Peace Group Bombs IBM

(Continued from Page 1)

The Data Processing Division operates an in-house computer center on the 10th floor of the same building, but it was unaffected by the explosion even though water damage from burst pipes was relatively heavy in the building.

The Revolutionary Force 9 letter to UPI, quoted verbatim, stated: "IBM, Mohile; and GTE are enemies of all life. In 1969, IBM made \$250 million, Mole \$150 million, and GTE \$140 million for U.S. defense con-

tracts," profile made from the suffering and deaths of human beings. All three profit not only from death in Vietnam, but also from American imperialism.

"They profit from black oppression in black, Puerto Rican, and other minority colonies outside America from the suffering and death of men in American army, from sexism, from the exploitation and degradation of employees forced into lives of anti-human work, from the pollution and destruction of our environment."

Statement From IBM

"We believe the bombings, which apparently are a protest against the Vietnam war, are deplorable. The war, of course, is a matter of great concern to everyone and has had a terrible effect on our nation. Under our system, however, the way for individuals to oppose the war is not through anarchy or violence, but through the orderly and democratic process available to all.

"For a company to attempt to express its viewpoint by selling or refusing to sell its products to our own government is clearly wrong. A corporation cannot establish foreign policy or representative government quite properly has that responsibility.

"The IBM Company is a defense contractor, although this represents only a modest amount of total IBM business. We intend to continue to respond to requests for bids from the government in any area where we believe we have competence."



COMPUTERWORLD
THE NETWORK FOR THE COMPUTER COMMUNITY

The New York, N.Y. Office.
Weekly newspaper—Second-class postage paid at Chicago, Ill. Published weekly (except twice a month during the last week of April, the first week of May, and the second and third weeks of November) and a single combined issue for the last week in December and first week in January by Computerworld, Inc., 25 E. Wacker Drive, Chicago, Ill. 60601. G-51970 by Computerworld, Inc.
Send all editorial and subscription material to Computerworld, 797 Washington St., Newton, Mass. 02160. Telephone: (617) 332-9406, TWX: 710-335-6635.

Robert M. Patterson, Executive Editor; V.J. Farmer, News Editor; Neil Wilder, National Sales Manager; Margaret Finley, Circulation Manager; Henry Flinn, Art Services Supervisor; Mary Linton, President.

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Afips to Work for Computer Year

(Continued from Page 1)
IEEE, which had earlier indicated that it would not support the project unless sponsored by Afips.

Plans Still Hazy

The plans for the National Computer Year are still up in the air for the year and no definite agenda—or even a starting date—will be made until the initial meeting of the coordinating committee. No definite date has been set for this meeting, but it should be sometime in the early part of April.

The organizer of the idea, Robert Bemer of GE, still hopes that the on-going National Computer Year program will draw heavily on the data generated for the ACM 1970 conference. This data will attempt to define some of the problems facing the participating disciplines: medicine, law, urban affairs, etc.—and

attempt to set guidelines on how the computer community can help solve them.

Support for Year Growing

The potential support for the National Computer Year is on the upswing, according to proponents of the idea. Dr. Lee Dubridge, President Nixon's science advisor, recently indicated that the idea of a National Computer Year is of "much potential benefit" and promised cooperation of his office in implementing the plans, according to Bemer.

Dubridge, Bemer said, has named Col. Andy Aines of his office as a representative to the planning sessions and as the fact point between the executive branch of government and the computer year planners.

The planners hope to receive foundation support of the projects undertaken during the year.

Bemer said that the Ford Foundation has already shown the interest and that discussions were underway with other foundations on the possibilities of support.

Other support is expected from the Computer Science Board of the National Academy of Sciences/National Academy of Engineering, the Planners said. Another quasi-governmental body, the National Research Council, will be represented during the planning phases of the project.

The coordinating committee for the year must set definite dates and plan the structure of the year, Bemer said. Although ACM initiated the idea, he said, it is now just one member of the coordinating committee and "we'll do anything to get the year started," even if it has to be postponed for a while.

Ohio Bell Agrees to Isal Withdrawal

(Continued from Page 1)
special assemblage charges with respect to Isal lines and in addition cause an "immediate rollback" of the rates charged to the computer companies, to the rates previously prescribed in existing tariffs for business individual flat rates or message rates applicable.

An Ohio Bell spokesman told CW: "We have dropped the Isal charges out of the rate application and if the intervenors say this is a victory for them, that

apparently is so." When asked whether the Isal concept could be proposed again at a later date by Ohio Bell, the spokesman said: "Yes, it probably will be [proposed again], but we don't know just when or just to what extent it will be brought up."

In return for agreeing to drop the Isal plan, Ohio Bell will probably gain approval for an overall statewide rate increase of \$55 million.

Under terms of the agreement,

which is expected to be approved by the Public Utilities Commission, the rate increases will go into effect April 1.

Industry observers feel that AT&T and the Bell System are determined to segregate time-sharing users from other tariff users. It is believed that Bell is gathering data to prove that time-sharing customers exhibit longer holding (usage) time patterns than other telephone users. The time-sharing companies have disputed this claim.

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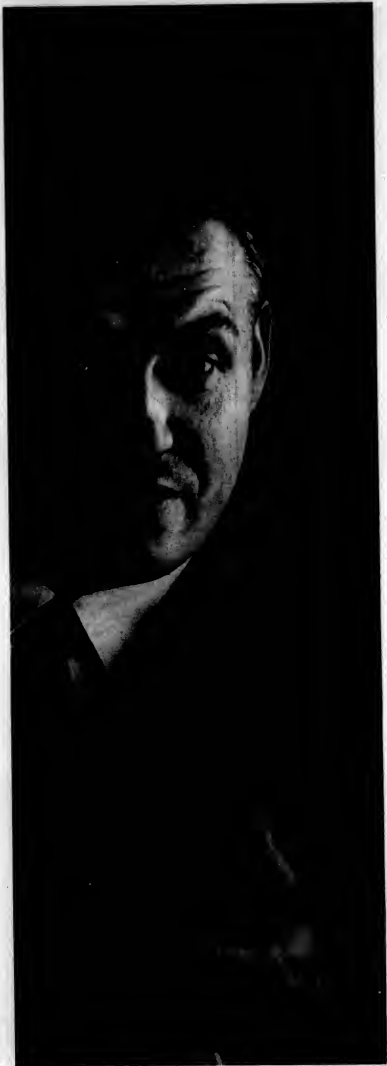
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System/3, Part V: Talks to 360s

Telecommunications Adds User Flexibility

By Frank Piasta
CW Staff Writer

The addition of a communications capability has significantly enhanced the value of System/3 to the user.

Previously, the system represented an inexpensive method of computerizing existing tab installations; but now with the addition of a communications adapter, the user can upgrade from a tab site to a communications environment in one step.

The small user at a remote office of a large corporation can use the System/3 to do his local processing, while transmitting data for home-office analysis.

He can also make use of the greater power available in the

home-office 360 to solve large-scale problems.

As an alternative, the user can utilize the adapter's capability to communicate with the 360, and other binary synchronous devices, to tie into a time-sharing network.

This would prove valuable to the installation without a large system to call on. It could also postpone the date on which the user would have to upgrade his installation.

Although complete technical details on the new communications adapter have not been released by IBM, a spokesman described it as being similar in most respects to the Model 2074 binary synchronous commu-

nications adapter available with the 360/20.

Many Alternatives

This apparently means that in addition to being able to communicate with a 2770, 2780, 2790 or another System/3 equipped with the adapter, it can also be connected to a 360/20 equipped with a 2074 at speeds of from 600 to 50,000 bit/sec.

The 2770 and 2790 are data communications systems. The 2780 is a data transmission terminal.

A System 360/25-85 and 195 which is equipped with either a 2701 data adapter unit or the 2703 transmission control can

also use the S/3 as a terminal device.

The 2701 must be fitted with a synchronous data adapter type II, which handles data rates from 1,200 to 50,000 bit/sec. The 2703, equipped with synchronous communications features, can handle data rates of 1,200 to 4,800 bit/sec. A 360/25 using its integrated communications attachment can operate at from 1,200 to 4,800 bit/sec.

The System/3 can also communicate with any component, in a public network, that is IBM binary synchronous compatible.

Telephone Feature

Automatic telephone connect/disconnect can be made by the System/3 adapter without operator intervention and data is transmitted or received in half-duplex synchronous mode over appropriate communications facilities to and from compatible terminals. Units at both ends of the communications network must operate at the same speed, however. The adapter can operate in either Eudic or Acsi transmission code.

Voice grade lines in a switched network can be used for transmission rates up to 2,000 bit/sec. Leased lines are required if data rate is to go as high as 4,800 bit/sec.

If transmission rates above 4,800, and up to 50,000 bit/sec are required, wide-band communications service is necessary.

Binary Synchronous

Data concentration or multiplexing is not available with the adapter. IBM uses binary synchronous communications, which is claimed by IBM to increase the speed at which data is sent and received from 25% to 100%.

Binary synchronous also permits transmission of binary, numeric, and binary-numeric information to remote terminals without modification, according to IBM.

A modified RPG II is used to interface with a revised systems program to control the communications adapter. This allows the programmer to describe his telecommunications configuration in RPG II, treating the System/3 as a terminal. The systems control program is resident in memory on card-oriented systems, and in memory and disk storage on disk-oriented systems.

A minimum configuration required for use with the adapter would be 8K of core memory for a card system, and 12K for a disk system.

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April and May 1970

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AT&T to Phase Out Advanced Data-Training Center

By Ronald A. Frank
Technical News Editor
COOPERSTOWN, N.Y. — AT&T will soon phase out its advanced data communications training center, which has been operating here since 1961. The move is part of a decentralization program by which AT&T is turning over training responsibilities to individual companies within the Bell System.

Whether data communications users will benefit from an increase in locally trained data personnel is not clear. But AT&T apparently feels that the decentralized data training will help to alleviate the current shortage of Bell-qualified data consultants.

Some observers believe that the Cooperstown training, which consists of an intensive three-

month course in all aspects of data communications, cannot be replaced. The existing course covers communications technology, tariffs, systems configuration, equipment utilization, and related subjects. The training center, in addition to providing students with access to advanced-communications equipment, indoctrinates students in the latest AT&T concepts and policies.

One observer, familiar with Bell's training methods, told CW that communications courses offered by local telephone companies will be much less intensive than the present Cooperstown program. One course being instituted by New Jersey Bell will condense communications training into a two-week curriculum. The observer said that

most data courses to be offered by local Bell companies will run from two to four weeks. He said that it was unlikely that the new courses would approach the three-month training period used at Cooperstown.

One possible explanation for the decentralized training may be that a high percentage of Cooperstown graduates leave the Bell System. Of the more than 3,000 students that have completed the course since 1961, almost half are no longer employed by Bell. One source told CW that Bell may feel that

Cooperstown graduates are too thoroughly trained in data communications concepts. He added that this educational overkill gives graduates enough knowledge to leave Bell for jobs as communications consultants and managers with competing commercial firms.

In explaining the reasons for terminating the Cooperstown training center, E.L. Robinson, AT&T marketing manager, told CW that advances in communications technology have made it necessary for individual Bell operating companies to meet local

communications needs.

Robinson further stated that local training would give Bell companies the capability to turn out larger numbers of data consultants to meet the increased requirements of computer-data users. He added that the

Communications

Cooperstown operation will be replaced with about 25 regional training centers that are now being staffed in preparation for the June change over. Up to now the Bell Advanced Data Communications course in Cooperstown has been given primarily to those destined for marketing and management positions by AT&T.

When asked whether the decentralization of training was in any way connected with the increased competition that Bell is encountering in the area of data communications, Robinson said current training courses provide instruction to data personnel in the role that Bell plays in "a multi-supplier environment."

MCI Precedent Not Fixed, FCC Says

WASHINGTON, D.C. — The Federal Communications Commission has ruled that the six filed applications to provide MCI-type data communications services to computer users on the West Coast are "mutually exclusive by virtue of economic competition and electrical interference."

An FCC spokesman told CW that the MCI decision approving a microwave link between Chicago and St. Louis had not "yet a sufficient precedent for the [commission] staff to act on these applications."

The spokesman added that each application will have to be heard on its individual merits.

At issue are filings from Astron Corp., MCI Pacific Coast Inc., Microwave Service Co. Inc., Southern Pacific Communications Co., Microwave Transmission Corp., and Western Tele-Communication Inc.

A related application by Data Transmission Corp. (Datran) has yet to be considered by the FCC and may also fall into the mutually exclusive category, according to the source.

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Editorials

Heart Transplant

Rep. Cornelius Gallagher wants to "transplant a human heart and a human brain" into computer applications. He has introduced two bills to protect the public from computerized billing abuses.

The question immediately arises: At what point in the transition from manual to computer methods is the heart and brain lost? The question becomes particularly important because some computerized billing systems seem to operate with few complaints, indicating that they already have a heart and brain.

Perhaps the key lies in a statement made by a company executive when he was asked for some information: "In the old days I could have gotten that information for you in a few minutes, but now with the computer it may take two weeks. I have to wait for the next update run."

In other words, the people are as willing as ever to help, but the system has no provision for providing information when it's needed.

The obvious solution is an interactive system that permits people to get information when they need it.

Interactive systems are expensive. But the price may be cheap when compared with the cost to the user of bad public relations and impending legislation.

Sociology of Computing

Some Programmers Retire On the Job

By Miles Benson
Special to Computerworld

Sam B. once was a crackpot programmer. He still could be, but something happened to him a couple of years ago, and he has now retired - on the job. He puts in his time, but little more.

Ralph J. at one time was well-known in computing circles. He was president of a leading professional group, well-liked, promising. But something happened to him, too, and his work days now rise and fall with monotonous regularity.

Clyde, S. scored a software breakthrough a few years back for a leading serograce firm. The tool he developed is still highly thought of, but Clyde has ridden its coattails too long. His software is growing obsolete around the edges, and he has done no significant follow-through work at all.

The causes of these cases differ, although there is a common thread to them. But the effect is the same. Capable computing people are wasting away on the vine. In this talent-short world, this is a special kind of tragedy.

The common thread to these premature retirements is the disinterested large corporation. Each of the three persons named above works for a different large, prosperous company which is at least nominally concerned about employee relations. Yet there is an atmosphere in a large, prosperous company which can foster just this sort of effect. What is it?

There are two mistakes the large company may make. The first is corporate conformity. The talented individual, self-confident and capable, often questions established policy, and speaks out for a change. In a small company if the policy is wrong, it may well be changed. In a large company, it will seldom be obvious whether the policy is wrong or not, and the easiest solution is to ignore or silence the challenging individual. Sam B. and Ralph J. were both caught in that trap.

The second mistake a large company may make

is in letting people "fall through the crack." The individual who conforms can often hide in anonymity, buried deep within his company's large corporate structure, doing as much or as little as he likes. His salary and job classification may not advance, but it is unlikely that he will be challenged to "put up or get out."

Sam and Ralph chose anonymity after their challenges to corporate policy were ignored. Donning the cloak of corporate conformity, they quietly and deliberately slipped through the crack. It is not likely that they will challenge again. Anonymity is comfortable and secure, though dull.

Clyde, on the other hand, settled slowly into anonymity without any company prompting whatsoever. Clyde is capable but he only produces when he's prodded. Management grew tired of prodding, and Clyde slipped comfortably into the ranks of the Sams and Ralphs of computing.

Sam is now working on maintaining the operating system supplied by the vendor of his company's computing hardware. The work is ill-defined, and he can produce minimally without alarming anyone by his low output.

Ralph is working in long-range planning. Keeping up with the computing literature is a convenient way to pass the time. He knows which vendor will eventually dictate his company's long (and short) range computing acquisitions, so his planning can hardly go wrong.

Clyde studies utilization levels of current computing equipment. The field of measurement is waiting for a breakthrough. Clyde won't find it (unless, perhaps, he's prodded), but no one will be surprised because most other people working in measurement won't score a breakthrough, either.

It's a shame, this computing sociological phenomenon. The companies are getting the talent they're paying for. The people themselves are stagnating.

Thank You, Barry Passen

When the Elmira, N.Y., *Star-Gazette* printed some negative and misleading information about computers, Barry J. Passen, a data processing instructor at Corning Community College, didn't just grumble and forget about it.

Passen sat down and wrote a carefully worded letter to the editor which explained in layman's terms what a computer is, how it works, and how it can be used.

He concluded: "The next time a headline stating 'Computer Goofs' appears, change that statement in your mind to 'Man Goofs.'"

The letter, which was published, probably has done more to give the public in that area a true perspective on computers than any article we have ever seen published in the general press.

The computer community owes a debt of gratitude to the Barry Passens, the people who take the time to speak out ably in defense of computers.

Computerized Personal Letters Can Be Used Properly

In your editorial of Feb. 25, you take a fairly firm stand against computer produced "personal" letters. Page 21 of that same issue contains an article on software to produce such letters. Can you briefly explain the contradiction?

T.B. Wangness
Manager
Real-Time Programming

Western Airlines
Los Angeles

Computer-produced letters offer an excellent opportunity to provide special, individualized information to the recipients. We are opposed only to the innate practice of using all this power to repeat the recipient's name and address several times in a letter. As to the article, even if it offered a product that we editorially opposed, we would print it because we do not censor the news. Ed.

Data Sought on Communication Systems Management Association

I am most interested in obtaining further information and application for membership in the Communication Systems Management Association.

W.J. Vandeven
Principal Research Associate
Research Division

Bank Administration Institute
Park Ridge, Ill.

For further information, contact: William T. Rush, Manager, Communications, Applied Logic Corp., 1 Palmer Square, Princeton, N.J. 08540, Ed.

Letters to the Editor

Don't Lose Sight of Small Specialized Computers

In your Feb. 18 issue, page 18, you describe a "computer based breathing test" that utilizes portable test equipment linked to a central computer over phone lines. The computer analyzes the test in seconds and reports the results to a printer at the remote site.

We in the computer field must not lose sight of what can be done with small specialized computers. There is a commercially available device (about \$800, smaller than a typewriter) that can directly provide the usual measurements for pulmonary function testing. It is a specialized analog computer and displays the test results on a meter immediately after the test.

Jan Polissar, M.D.
Senior Consultant
Medical Systems

Commed
Rockville, Md.

AT&T Reads Mic Input Optically on IBM 1287

Your recent Independent Peripherals Supplement was interesting and informative. Being directly involved in the installation of OCR equipment in the Treasury Division of American Telephone and Telegraph, the sections on these devices proved to be of special interest.

You might be interested in the fact that we are currently reading Micr optically on IBM 1287 at our Raritan River Center. The Micr reader is an RPQ device that has performed excellently. In fact we have found the reject rate to be less than we have experienced on the 1419.

D.C. Hansen
Planning and Technical Support
American Telephone and Telegraph
New Brunswick, N.J.

33 Million Dossiers Coming

'Code 35' Means 'Chases Married Women'

Rep. Jackson E. Betts, in his recent letter to *Computerworld*, asked the computer professional to advise him as to what type of safeguards should be built into legislation establishing national data banks. What he did not bring out was the urgency of the need for such advice. True, neither of the particular data banks he mentioned (the Job Bank, and the Welfare Bank) have yet been authorized by Congress—but the planning

is already well under way, which makes it more and more important that the safeguards are put into the legislation—as Rep. Betts wants—instead of being left to the discretion of the agencies concerned. And so the question remains—what can be done quickly while the bills are still in Congress, and what should be done if they fail?

Confidentiality Protected?

Looking at the actual legislation proposed, it appears that there may be nothing necessary. Throughout the various documents there are safeguards to the operation. "Confidentiality" is the key word. The data will be kept confidential—using the current standards of confidentiality. If this is all that is needed, then perhaps no action is necessary.

But "confidentiality" is not "privacy." Confidentiality simply means that the data will only be given to people who have some claim of a right to see it. It doesn't even mean that these people will also have to keep it confidential. If some details of your employment record are given to one of the job banks in your state as a confidence, then the federal authorities can take the information without in any way being responsible for keeping that confidence. They probably will—but it is not certain.

Do You Chase Married Women?

And there are going to be items in the data base that you may well want to keep secret. Some of the data included is being put there simply for experimental purposes. Items in some of the individual records will involve factors such as a man's drinking habits, or the fact that he chases married women. Or at least that is what some of the documents are saying.

But—and here may be the important point—that is simply an untrue statement. There won't be anything in the files about a man's drinking or philandering habits, really. There

will be simple code, say "35" which indicates...well, what does it really indicate?

Factually, all that it indicates is that some coding clerk has allocated a code of "35" to some document in front of her. The document might be an employer's report, a medical report, an interviewer's opinion, some neighbor's gossip including a "55 credit rating" report. It might refer to, his current drinking

accurate information from the computer.

User's Interest

Computer users may not think that this is really their business (see box). And to some extent this is true. However, a widespread distrust of computer material is already present—as witness the delightful case down in Texas last year where some confidence men were able to

Is It Our Concern?

Are the operations of the federal data banks really our concern—or simply the concern of Congress? A professionally suggested safeguard may be interesting, but if Congress puts a safeguard in, it also has the power to nullify it. If it so chooses. And it is certainly not in the interest of professionals simply to have their expertise used as window dressing to camouflage the fact that the apparent safeguards are not really there.

One clause in the proposed Welfare Data Bank legislation suggests that Congress may be prepared to do just that. It says that the secretary is authorized to obtain any information that he says he "needs" from any federal agency. That's right—any information, any agency, and about anyone! It places no restrictions on what he uses it for afterwards. It doesn't exempt information obtained confidentially. It doesn't require notification to the individual in any case. It is just a blanket clause. And, as far as I can find out, no one has objected to it. Not at all.

And so, in that one clause in one bill, many of the safeguards against improper use that have been incorporated in other bills and acts are simply swept away.

If Congress really wants to give blanket powers to the agencies, then it seems that the interest of the professionals in safeguarding software, even at the congressional level, will be of very dubious value to anyone.

How about It, Rep. Betts?

habits—or to the situation 10 years ago. It may have been verified—or it may be simply a rumor. But—when it comes out of the computer system it will be assumed to be factual, and current.

False Output Danger

Such an assumption is false, from a technical point of view. And here may be an idea that Rep. Betts could apply. He might try to ensure that such false witness is not allowed, by asking that any publication or transmission of the data include with it details of the date, the source, and the verification methods used if any. Then the experimentalists would really get

explain away the difference between the stock broker's accounts and their story as being "just another computer error" and were believed. The spread of computer distrust would make all computer systems less believed, and therefore less reliable.

So remember: there is a real and important problem. If you have any ideas at all about how to safeguard data banks—let Rep. Betts know—also *Computerworld*—your congressman—and your senators. They are all currently involved.

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Where are our leaders to come from? What are our computer societies for?

But then, maybe we are just a "supportive" community.

The Taylor Report
by Alan Taylor

concerned is rushing along fast under its own momentum. This is particularly so in regard to the Job Bank. Already two "model" systems have been approved (although how you know that a system is a "model one" when it has not even been operating for 12 months is beyond me). Copies of these are expected to be operating in 55 major areas by June and in every state by the end of the year! Some speed!

This speed of operation, while highly unusual, is not surprising. Technically, the movement of a program once written to another computer can be simple, and in this case it apparently is. Indeed it can be said that speed of deployment may well be a standard characteristic of computer-

Computer Community—Only Supportive?

At a technical society conference a few years ago a member of the "public" appealed to this profession to take a stand on the development of computer screening services to bring at least some medical attention to parts of the country without doctors. This was shot down as being "political."

The Washington, D.C., chapter of ACM a while back drew up a resolution of its position on the national data bank issue. ACM did not adopt it as an official stand because one clause was "political." The "one clause," never identified, could have been rewritten or omitted. Instead, ACM took no position.

Afips was approached a few years ago with a plan to conduct periodic briefing and education sessions for members of Congress to enable them to legislate in a more informed way where

this technology was involved. It was harshly rejected as being "lobbying."

Dr. Richard Tanaka, president of Afips, summed up the situation in an interview in *Computerworld* that on the international scene we go in and make

Huggins' View
by Phyllis Huggins

the money but we don't take part in the community.

For more than 10 years this community "Do we have a social responsibility? What is our social responsibility?" Part of the problem may be that we are an industry dominated at times 90% and now 75% by IBM, a conformist corporation. The late Sam Alexander of the Bureau of Standards, said that 90% of the research

funded for this technology by government was from the Department of Defense—another group not known for placing value on individualism.

Oddly enough, the few people who have spoken out on public interest issues have come by and large from Rand Corp., the Air Force's think tank. The policy at Rand, however, has been to give far freer rein than in the normal set-up. Paul Armer, Paul Baran, Richard Bellman (none of them with Rand any longer) and Willis Ware have distinguished this profession by testifying on problems of public concern.

We are in a critical phase right now as research is being all but obliterated. This means we are just an industry, at a time when people, fired up as never before, take on the problems of making this a beneficial, beautiful world to live in for all people.

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COMPUTERWORLD

viewpoint

Point of Issue

'Facts' Must Be 'Facts'

By Robert P. Bigelow

Last Fall *Computerworld* mentioned a case in which a computer error led to the wrongful repossession of a man's car and noted that the owner had been awarded \$7,000 in damages against Ford's Credit Company. I was able to read the court's opinion in the case the other day and found that what actually happened was that the jury gave the plaintiff, John Swares, \$2,000 as compensation for his car (which had been sold by the Credit Company after repossession) and \$5,000 as punitive damages. The real question when Ford appealed the case was whether punitive damages were excessive. The court affirmed the jury's award.

The facts behind the repossession are not unusual. The creditor tells the debtor that there's a delinquency; the debtor shows his cancelled checks. Two months later the creditor again demands payment and again is shown the checks. The third time the collectors returned, Swares "advised them that he would show them no more records, and while displaying a shotgun, he also strongly suggested that they leave his home." He heard nothing further until six weeks later, when Ford took the car away while he was at work.

Swares' car was repossessed in 1963.

How many more cases of this type have happened? And how many more are now in the courts? And how many are being blamed on "a mistake by a computer?"

Users who rely on the computer and do not, before they take legal action, check to make sure their facts are right, are going to be treated just like Ford. Punitive damages of several times the amount of the actual damages will be awarded by American juries. And rightly so.

Art Strickland

Naming Firms Could Be Big Business

As you may have noticed, computer-oriented companies are springing up like weeds these days. You may even have sprung one up yourself. If so, then you realize that the most difficult and important task in forming a company is to find a name for it. Everybody knows by now that if it hadn't been for its cornball name, the Edsel would have been a fantastic success, and nobody wants to stake his brilliant computer idea on a loser like that. To save the thousands of would-be presidents from this ever-present pitfall — as well as to run up his own stock — an enterprising mass psychologist I know has formed a company called "What's in a Name, Inc." (WIN). I dropped in on him the other day to see if he could help me with a company I'm trying to form.

"We started out with a very small staff," he reminisced, "just producing corporate monikers — that's what we call them in the trade — for computer industry companies, but now we've diversified and expanded our range of offerings quite a bit. We're getting into trademark design, logos, acronym generation, stuff like that."

"I'm surprised you see a continuing market for your product," I said. "Don't you expect the number of company formations to dwindle?"

"Well, we don't see any sign of it yet. In fact, IBM's unbundling has caused a real flood of orders for us. Our market research people estimate that two new companies will be formed for every IBM branch office in the next week alone."

"But surely they won't all last," I countered. "Won't the used moniker market wipe you out?"

He grinned. "Oh not at all. You see, once a moniker has been attached to a failing company, nobody'll touch it. There's literally no such thing as the used moniker market. It's beautiful!"

"I see. Well, where do you see your growth potential? Even if your share of the market continues at present levels, you're surely subject to modestly increasing demand at best, aren't you?"

"That's where our market expansion program comes in," he beamed. "We already have active programs to penetrate the housing development

and cocktail lounge markets, and the results have been very gratifying. Why, we monickered a bar in Secaucus just the other day."

"What did you call it?"

"Computrunk." He paused. "We still have a few bugs to work out of our package, but we'll be delivering quality products in all areas by year end."

"In what other areas do you see potential," I asked.

"Well, it's literally everything from soup to nuts," he chuckled. "We're looking at TV and radio stations, dinner rolls, you name it. Of course our ultimate success will be based on the population explosion."

"The population explosion?" I looked puzzled.

"Babies, man, babies! Think of it!" He was on his feet. "It's the first major problem of parenthood. People are literally crying to be named."

Why, I see a WIN terminal in every maternity ward by 1975. The potential is fantastic."

I had to agree.

"But you came here for a monitor, right?"

"Uh, not exactly. I just wanted to see what you might have to offer. I'm not ready to incorporate yet."

"Well, when you called, our staff went right to work, and we've got the catchiest little package you could imagine." He went to an easel. "You're gonna be a software house, right? You're gonna make those computers really sing, right?"

"Right."

"So we're gonna call you" (turning to the first chart) "Computrol!" He paused for my reaction.

"And get a load of this logo." The next chart was a picture of a dog looking at a listing. The caption read: "His Master's Code."

I was overwhelmed.

"Think of it on millions of vinyl notebooks in millions of installations around the world. Why, it may be the moniker of the decade!"

It cost me half my assets, but it'll be worth it. And besides, I've recovered the cost. I rushed out of his office and bought a thousand WIN at thirty-six cents, and it's up to thirty-seven already.

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Plug to Plug, Portable

Section of the Univac 418 system, owned by Chicago's Harris Trust and Savings Bank, is lowered from 9th story location at 111 West Monroe St. The computer system, whose 140 component parts are valued at over \$10 million, was recently moved to the bank's new location, 311 West Monroe St. A 125-foot crane was used in the operation, which required removal of windows because the computer would not fit in the freight elevator. The crane followed the computer along the two-block journey, then hoisted it up to the fourth floor computer center. Total operation took almost 5 hours.

Bayonne Checks Delayed by 'Bugs'

BAYONNE, N.J. — This city of 74,000 has automated its municipal payroll in four "separate packages, but not before "bugs" held up checks for 300 hourly employees.

A city official said that automation was attempted "without the advantage of a trial run or any debugging."

He added that the checks "weren't" held up. They just couldn't be released until the payroll was proofed-out, that was all.

The hourly wage-earners had to

wait from the regular Friday payday until the following Monday, and the New York service bureau that provides the data processing for Bayonne reportedly had to work throughout the weekend to accomplish this.

The city official was reluctant to discuss the matter, but he did say that the extra work of bringing pay records to New York for processing was an inconvenience.

He also said that "the city of Bayonne in time, if they don't have their own computer set-up, will be out-dated."

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Adapso Says EDP Services Merit Federal Purchase

NEW YORK. — Adapso, in a recent position paper, stated that federal, state and local governments should, as a matter of course, consider the purchase of EDP services from members of the computer services industry as a preferred alternative to the installation of computing hardware and the associated facilities and personnel.

In most cases, the Association of Data Processing Service Organizations said, private industry is capable of supplying such services on a competitive economic basis.

Unless there is some security or equally compelling reason for such activity, the paper continued, the onus should be upon governments to prove that they must furnish their own data processing services with the attendant heavy investments and specialized personnel requirements.

Economic Risks

The furnishing of EDP services by governmental organizations subjects government to large economic risks, and in many cases denies government the

economies which would result from the greater efficiency of private specialists in these areas, Adapso said.

The computer services industry requires a professional and skillful approach, Adapso said, much the same as do the services provided by others furnishing accounting, engineering, and legal services.

Private industry is rapidly recognizing that it does not need to produce its own EDP requirements to the point where large private companies are arranging with professional EDP service

organizations to supply data processing needs, the paper continued.

These same economic considerations apply in varying degrees to private companies, tax-free philanthropic organizations and companies holding governmental monopolies and other privileges, Adapso said.

However, such governmental activity is of special concern because government's role in society should be limited to areas of necessity in order to preserve free enterprise, the paper said.

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Suspected Stolen Credit Cards Computer-Checked

ATLANTA, Ga. — Suspected stolen credit cards can now be checked and their holders apprehended within minutes at most of the country's service stations.

National Data Corp. (NDC), a computer services firm here, uses two Univac 494 real-time computer systems to combat organized crime syndicates and petty thieves using stolen credit cards issued by most of the nation's large oil companies, and the Interbank Card Association, serving 20 million card holders and some 400,000 participating merchants.

Lists of the numbers of all stolen or lost credit cards are stored in the memory drums. In addition, numbers of cards cancelled because of credit problems are also recorded.

A service station manager anywhere in the U.S. with a suspected stolen card can use the service by calling NDC at any of its branches in Cherry Hill, N.J., Reno, Nev., or Chicago. Each of these offices is connected to the Atlanta computer center.

When the computer operator types in the company's name, the station identification number, the credit card number and the account, the computer indicates within seconds if the number matches one in the memory. If it does, the computer indicates what action should be taken about the situation.

If the card is not on the cancelled list, the computer registers an approval.

Early Warning

The company also operates an "Early Warning Service," which goes into operation if an unusual number of large purchases are made against any card within a specified number of days. The computer will record these amounts as the credit checks are made.

A query is then made to the particular oil company issuing the card to determine if the card has indeed been stolen or lost. In this manner, the oil company can check with the legitimate owner to discover if the card has been lost or stolen without the

holder's knowledge.

If a station manager charges an amount over the checking limit without verifying the card and it has been reported lost or stolen, his station is liable for the loss.

With the new computerized system, credit card checks can be completed in an average of 20 seconds after the call has been received. By contrast in the past, the station manager had to depend on a printed list of stolen credit cards circulated monthly by his company.

It was in fine print and the numbers on the list were usually up to a month old by the time the station received it. Thus the data was almost two months old in the week or so before the list arrived.

The Interbank Authorization Service (IAS) operates in a similar manner to those handled for the oil companies. The merchant gives the particulars of the transaction to the operator. This information consists of the four-digit ICA number of the acquiring bank (the bank the merchant is affiliated with), the merchant's identification number, the four-digit ICA number of the issuing bank (the bank or bank association issuing the credit card), the card account number and the purchase amount.

In addition to the mandatory information, the merchant may include a two-digit code identifying the type of transaction — cash advance, merchandise, service, etc.

The computer then matches the incoming information against the bank's established authorization regulations and either OK's the transaction or else issues appropriate instructions such as "Do Not Honor."

Besides direct inquiries from merchants, inquiries also come from authorization centers of bank card associations, etc.

Since the NDC credit card checking service became operational more than a year ago, the volume of incoming telephone calls to the various centers has built-up considerably. In August last year more than 1,500,000 calls were received for checks on oil company credit cards alone.

To Find 'Other Fish in the Sea'

Special to Computerworld

BONN — West German fisheries may soon be able to rely on a fully automatic system to insure the biggest catches at sea. Bonn's Science Ministry is sponsoring a study to develop such a system.

If successful — and the chances are good — the system will replace the traditional standby in determining where to drop nets, how deep, and at what speed to tow them along. At present it is the ship captain's job.

In theory, the integrated, computerized replacement will work something like this:

As soon as the ship reaches fishing grounds, nets will be put out. A special search-and-spot sonar system will then begin "feeling" out the waters in the vicinity for schools of fish.

Once a school is in the nets, a computer evaluation of con-

centration, depth and distance will tell the skipper whether the school is worth following further.

In addition, the computer will control the catch in the nets and tell when it was time to break up the catch.

Computer Upkeep Plan

DRETOIT, Mich. — A scientific computer system designed for multifamily operations is set to provide more efficient upkeep service for tenants.

When an apartment needs painting or other periodic maintenance, the machine automatically alert the management.

Up Please Computer

DENVER, Colo. — Tenants of the yet-to-be-completed Colorado State Bank building will be treated to computerized elevator service.

Large Scale Data Acquisition!

Project Bomex Records Data for Weather-Origin Study

BAY ST. LOUIS, Miss. — Besides the historic "giant leap for all mankind" taken by the first astronaut who stepped upon the moon, 1969 also will be remembered in scientific annals as the year man launched his most significant exploration into that baffling "inner space" phenomenon — the weather.

Scientific field operations for the investigation of the mechanism behind the world's weather system took place early last summer in a remote patch of the Atlantic Ocean:

Today, information from the 68-day study, the world's largest geophysical experiment in terms of amount of data collected, is awaiting recall from the magnetic memory of hundreds of miles of instrumentation tape.

Once converted to digital form, reduced to meteorological program parameters and computer processed by Nasa's Mississippi Test Facility here, the 50 billion bits of data will hopefully hold clues to long unanswered questions concerning the origin and predicatability of our planet's weather.

The collection of the information for the \$22,500,000 project, called Bomex (Barbados Oceanographic and Meteorological Experiment), required a strange fleet of research craft.

For more than two months, four boom-sprouting, dirigible-

Parachuted-instruments floated down.

The objective was to gather both oceanographic and meteorological data—taken from a range varying from an under-water depth of 3,500 feet to an altitude of 100,000 feet—in an attempt to document what happens in the complex and continuous exchange of energy, water, gasses and particulates that apparently occurs in a turbulent boundary layer about 6,000 feet thick.

Tape Used Heavily

The first visible "payoff" of all this activity was 1,200 miles of recorded seven channel wide band analog tape. There was precisely enough tape, figuratively speaking, to rope in the 90,000 square mile patch of ocean being studied.

A transport speed of 1-7/8 ips enabled 15-hour continuous recording. The tape was fed information gathered by specially developed Signal Conditioning and Recording Devices (Scard) and a decommutation unit, supported by a maze of related equipment.

Even before Bomex had moved from the tossing waves and summer storms, several computers had begun processing some 20 separate programs developed by the Mississippi Test Facility (MTF) to handle Bomex processing.

vertical heat flux and surface stress, and trajectory technique for studying the movement of a small parcel of air.

• **A Scientific Computation Software Package** of programs to solve core experiment equations using line integral technique (water vapor budget and energy budget); profile methods (transfer of momentum, heat, evaporation); eddy correlation techniques (fluxes of momentum, heat and vapor); energy dissipation techniques; and geostrophic departure technique.

In addition, of course, Nasa-

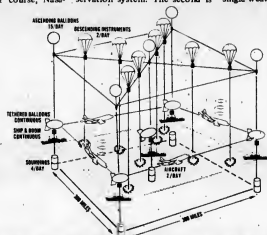
MTF has produced programming to prepare both computer-produced tabular output and a digital archive tape to be housed in the National Weather Records Center in Asheville, N.C. There the data will be available for study by any qualified researcher, agency or nation.

To produce the super-accurate long-range forecasts representing the ultimate goal of the program, three major pre-requisites will have to be met.

The first is the need to establish an adequate worldwide observation system. The second is

development of a numerical model that will include all the data essential to extended-term weather prediction. The third requirement is development of computers capable of processing rapidly the vast amount of data that would be gathered from stations around the world.

Sophisticated as current generation computing hardware may be, it is estimated that the amount of data involved would be so massive that today's fastest computer would require 25 days to process it and arrive at a single weather forecast!



Artist's conception of layout for Project Bomex data acquisition



Some 1,200 miles of seven-channel instrumentation tape covering 7,680 hours of meteorological and oceanographic data was gathered for Signal Conditioning and Recording Devices (Scard) like this one being checked by Alex Pareisch (left), New-Mississippi Test Facility senior project engineer for Bomex; Merrill Jones, Air Force quality control representative, and P.T. Mowery, GE Bomex program manager.

flying U.S. Coast and Geodetic Survey ships and one Coast Guard ship lay implausibly anchored in as much as 18,000 feet of water on each corner of a 300-mile, "square" of Atlantic Ocean east of Barbados Island. Approximately 37 sensors on each ship transmitted data 20 to 22 hours daily recording everything from wet and dry bulb temperature, salinity and depth, to ship azimuth and radar slant range.

Data Accumulation

A dozen buoys, other ships and an unpowered 335-foot floating laboratory instrument platform (Flip) which flips to a stable vertical position on open seas recorded information within the zone.

Twenty-eight airplanes and several satellites criss-crossed this patch while transmitting observations. Balloons floated aloft.

The computer programs fall into three general classes, including:

- **A Data reduction software package** that improves the quality of data by smoothing (curve fitting, filtering), interpolation, or averaging.

- Basic program packages to handle scientific computations for core experiments. These include: aerodynamic technique for computing the gross features of energy exchange and estimating the amount of evaporation over given periods; eddy correlation technique for determining flux of momentum, heat, and moisture; energy dissipation technique for determining stress using horizontal wind measurements; geostrophic departure technique for the estimation of the vertical transport of momentum in the atmospheric boundary layer; time integral technique to obtain net evaporation.

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National Agency Proposed in Canada To Coordinate Computer Development

By Peter F. Carr
CW Staff Writer

OTTAWA, Canada — A national agency to promote an integrated network of computer utility communications by establishing common standards, providing research and development, and overall systems planning has been proposed as a means of controlling the country's national interests in the 1970s.

In a speech before the Data Processing Management Association (DPMA) in Montreal, Eric Kierans, Canadian minister for communications also warned of other dangers.

The high degree of U.S. domination in the world computer market necessitated Canadian

governmental intervention in the industry, he said.

Powerful Industry

In the future, Kierans said, the computer industry will become as powerful an economic force as the automotive industry is today. Its social, political, and cultural impact will eventually equal that of the broadcasting industry, he stated.

"I am convinced that if we in Canada lose control of this essential information industry, any effort to maintain a distinct Canadian political entity would be futile," he said.

No Policy Yet

Stating that as yet, Canada had no overall policy to deal with

the revolution in computers and information systems, he pointed to examples of government intervention in airlines, telecommunications, and railways to make sure these were completely Canadian-controlled.

This policy, he continued, has helped to overcome the large overhead costs that had to be met in building up Canada's industry.

Pointing to the dangers to national sovereignty if the Canadian computer utility became too closely linked, both in a corporate and a systems sense, with the U.S. computer utility, Kierans said that associations such as the DPMA have broad social responsibilities.

However, he continued, the same responsibilities fall even more heavily on the government.

Possible Measures

Kierans outlined possible measures for control of the computer utility. These ranged from the present situation where common carriers are under relatively simple constraints to the establishment of several total computer monopolies or permission for a few selected companies to establish a computer communications common carrier.

However, a solution involving a mixture of public and private anticipation appeared to offer the best alternative, he said.

To implement this solution, the creation of a national agency under federal charter, but with representation from all groups involved in the planning, operation and use of the utility network, would be necessary, he said.

Kierans emphasized, however, that no policy decision had yet been made by the government.

"But it will be made soon. I regard the choice of policy in this field as one of the chief priorities in Canada, not so much for today but for tomorrow, because computers are going to shape our tomorrows," he said.

NLRB Postpones Codon Hearing To March 23

BOSTON — National Labor Relations Board (NLRB) hearing against Codon Corp. has been postponed until March 23.

The NLRB has charged that Codon of Waltham, Mass., fired five programmers for engaging in union activities (CW, Feb. 11). The Boston Chapter of Computer Professionals for Peace (CPP) is planning actions to support the fired programmers. CPP chairman John Dove noted that one of the issues being considered by the NLRB was the refusal of some of the five to do work related to the Vietnam war.

Dove has asked persons interested in supporting the fired programmers to contact him at 67 Mt. Vernon St., Cambridge, Mass.

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Scris Pools Census Data for U.S., Local Agencies

By Harvey Elms
Civ Staff Writer

LOS ANGELES—A special study, designated Scris, is underway using computer maps and census information as "tools to combine central summary tapes with local data files," allowing federal and local agencies to pool data, says Scris director Coby C. Smith.

Scris (Southern California Regional Information Study), a project begun last summer, is under the control of the Southern California Association of Governments (Scag) and the Bureau of the Census.

Smith directed a similar census-use study at the Bureau of the Census in New Haven, Conn.

The only major difference, says Smith, is in the size of the area. The Scris wants to see if the successful study can be conducted in the massive Los Angeles area.

At the start, both studies were charged

with the following objectives:

- The development of a system that would allow efficient interrelating of Census Bureau data with other local and state data to meet specific needs.

- To investigate the benefits of co-operative data collection between the Census Bureau and other local, state, and federal agencies.

- To investigate the level of detail and the form in which census data should be made available to local users.

- To develop computer programs for use by local communities to allow rapid conversion of census data into information useful for local analysis.

- To analyze the results of the study for potential procedures to be incorporated in local community programs to take advantage of census and other information.

- To publicize the results so that other areas around the country may benefit from the efforts of the study.

Probably the most significant development of the study has been experiments with computer mapping of urban data. Graphic indications of general geographic patterns and trends are not only useful for planning and analysis, but their visual impact and clarity are also reportedly important for administrative and public information purposes.

Visual displays of population concentrations, housing trends, and building permits, along with census information such as age, income, and size of family can be of obvious value to city and county planning departments and other governmental agencies.

As an example, Smith cited the rise in obsolescence and blight of an urban area reflecting the need for redevelopment and rezoning.

As for private business, the advantage of maps and census information will be largely confined to marketing areas, says John W. McMahon, president of Develop-

ment Research Associates and head of Scris private sector task force.

The group of local businessmen from Scris and Scag will be looking for ways business can benefit from the Census Bureau study.

Utilities, bankers, builders, mortgage firms, savings and loan firms, manufacturers, and computer firms—all both hardware and software—all are represented on the task force.

Computers used at the study at UCLA are the IBM 360/91 and 360/50, RCA's Spectra 70J45 is operating at the Long Beach bureau branch.

"We are not a data bank," stresses Smith, "but merely a clearing-house of aggregate information only, not individualized information."

The service, essentially free of charge, utilizes central summary tapes which will be released in the fall.

"Our purpose," Smith said, "is to disseminate information, to refine products, to show how products may best be used, and to supply users' needs."

Birdville Schools Quit Computer, 'Economy' Cited

BIRDVILLE, Texas—This town's school system is canceling its contract with an educational service bureau, apparently because a scarcity of applications made continued usage economically unfeasible.

Robert Cox, administrative assistant to the school superintendent, said that an annual contract of about \$15,000 would be terminated, and the town will return to hand-recording such items as attendance and grade reporting.

The contract has been in effect for only two years, and more applications were originally planned after attendance and grade reporting started going smoothly.

A review of the budget, said Cox, indicated that it would be advisable to halt the computerized operations, and wait and see if the state of Texas would announce plans to support local school applications.

Cox said that attendance records for the town's 14,000 students were being kept on the computer at the Education Service Center, and that grade reporting was being accomplished for fewer than half of these students.

The clerical work force will apparently be able to resume this workload without any additional hiring, he added.

Computers Run Job Bank

CHICAGO—The Illinois State Employment Service has begun using computers to keep its 30 neighborhood offices up to date on the 15,000 job openings it normally has available.

The system, known as a "job-bank," is the result of a 10-month test in 1968-69 in Baltimore by the U.S. Labor Department. The federal government hopes to install similar systems in almost every U.S. population center.

Revenue Office Computerized

INDIANAPOLIS, Ind.—The Indiana Department of Revenue will begin using computers to keep sales tax records.

The unit will provide the current year's status of a tax-paying merchant and simultaneously provide his sales tax record for the last three years.

The state will be able to determine delinquent accounts, scan suspect accounts, and provide field men with completely accurate data for the collection of large bills owed the state.



YOU BET YOUR SWEET-TEETH OPERATOR IT IS!

Beneath that Telex keyboard is a full-fledged 16-bit word length digital computer with the most powerful I/O structure available today. It's the DATACOMP 404.

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CORP. INC.

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SEE THE 404 IN ACTION AT THE FJCC—BOOTH 8411-12, CONVENTION CENTER.

March 18, 1970

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DEC Announces Business-Oriented Language

By Frank Pianta

CW staff writer

MAYNARD, Mass. — A business-oriented language for PDP-8 users was announced last week by Digital Equipment Corp. Also announced was an applications package using the language.

The language, called Dibel (Digital Equipment Business-Oriented Language), is described by DEC as a Cobol-like language, made up of three components:

- A language processor featuring a structure similar to that of Cobol with a syntax similar to Fortran.
- A data management system that operates on business files and permits a user to do input operations, merging, file maintenance without additional programming.
- A monitor system designed to tie components together to enable the user to operate the system easily.

The Dibel two-pass compiler,

excluding symbol tables and I/O routines, requires less than 3K words of core and can be run on an 8K-word processor, according to DEC.

A typical Dibel program consists of a data section, followed by the data section, the PROC statement (the procedure section), and the END statement.

Data Section

The data section resembles Cobol structure in that storage may be allocated on a data block basis with the block subdivisible so that either the block or one level of variables can be addressed. Shared use of storage for data allocation may be performed through overlays.

The data statement is used to define all program variables with respect to type and size. It contains a data name and a data specification indicating the type and size of the variable.

The data specification consists of a replication count, used to define arrays; a letter indicating the data type, alphanumeric or decimal; and the element size.

The Cobol PICTURE clause does not appear in the data section, but a similar device is used in the procedure section of Dibel.

Initial values for data areas may be specified by either the programmer or the operator as a job parameter at program execution time.

Procedure Section

The procedure section of a Dibel program contains the file-handling and data-manipulation instructions and implies the order of operations; here Dibel's resemblance to Fortran is pronounced. The format of most written statements is more familiar to a Fortran programmer than to one trained in Cobol.

Most operations are written in an algebraic form, which not only includes arithmetic operations, but also the data manipulating, logical, and compiler controlling statements.

The problem of radix conversion, commonly encountered when a binary processor is to be used in business applications, is avoided by making arithmetic procedures decimal through adding six-bit half-words serially.

Subroutines may be CALLED, and up to 10 subroutines may be tested.

Relations are specified as in Fortran IV, with \leq , \geq , \neq , EQ , LT , GT , LT , meaning less than, etc.

Data Management System

The Data Management System consists of three parts: generalized input facility, sort, and generalized file update.

The generalized input facility reads in paper tapes, punched cards, or teletypewriter input; it checks for data errors and creates formatted files on magnetic tape. Some of the errors that can be detected are incorrect data type, missing fields, oversized fields, and illegal commands.

START

BLOCK

```
INBUF      D6
STOCKN,    D6
            A25
UCOST,     D5
QORDER,    D4
BLOCK      OUTBUF, X
            STOCKN, D6
            DESC,   A25
            UCOST,  D5
            QORDER, D4
            ECOST,  D7
```

PROC

```
INIT (10, F, IN)
INIT (11, F, OUT, OUTBUF)
LOOP:      KMIT (10, INBUF, FOP)
            IF (STOCKN, LT, 1000) GO TO LOOP
            ECOST = UCOST QORDER
            KMIT (11, OUTBUF)
            GO TO LOOP
FOP:       FMIT (11)
STOP
```

END

Sample Dibel Program

The sort program has three phases: internal sort, multi-phase merge, and final merge. Control information may either be entered through the console or read from magnetic tape.

The generalized file update reads transactions from cards or tape, with each transaction coded as insert or delete. Through these commands, the transactions are passed against a master file, resulting in an updated master tape and a listing of transactions on the line printer.

Monitor

A systems tape is used by the monitor to allow maximum utilization of the PDP-8 system. This tape contains the systems program, compiler, editor, sort, generalized input/output program, applications programs, and control parameters.

After the monitor is bootstrapped, the operator responds to an inquiry by selecting the subsystem to be run. The subsystem can be the compiler, a phase of the sort, or a run-time system. If the run-time system is selected, the operator would then be requested to select an applications program to run.

At end of job, control would

revert from the applications program to the monitor, which would request the operator to specify the next run.

Applications Package

DEC has announced a commercial applications package for use by office products distributors which includes billing, accounts receivable, accounts payable, sales analysis, inventory control, payroll, and general ledger subsystems. DEC has also indicated that packages for other industries are being developed. Minimum configuration required to run Dibel would include 8K of core memory, three magnetic tape units, and a teletypewriter. Such a system would cost about \$30,000, according to DEC.

The Dibel system will be supplied to PDP-8 users without charge. The applications packages will be sold as part of a computer system, however. DEC has indicated that a configuration including an 8K processor, four tape drives, a line printer and paper-tape reader would sell for \$60,000, including the office products distributor's software package. This would include training, installation, and maintenance of the software package.

CSC Expands 'Infonet' To Four Key Areas

LOS ANGELES — Computer Sciences Corp. announced that its information network service, Infonet has become operational in New York City, Washington, D.C., Los Angeles, and San Francisco.

Initial users of the service include organizations in the fields of manufacturing, finance, electronics, engineering, research, education, and government.

The facilities opened are the first links in a planned nationwide computer time-sharing network that will utilize up to 20 Univac 1108 computers, according to CSC.

In the company's network, leased-communications circuits link Infonet computer centers to branch offices in a number of major cities. Subscribers in those cities can then communicate with the nearest computer at the cost of a local telephone call to a branch office. The computers are installed at Silver Spring, Md. and El Segundo, Calif.

The initial Infonet service, designated Basic, enables subscribers to solve problems and develop new application programs in a conversational mode, using low-speed terminals with teletypewriter-like keyboards, according to CSC.

Two more services, Remote Job Entry (RJE) and Conversational Remote Job Entry (CRJE), are also available.

RJE provides subscribers with the benefits of a large-scale computer for processing programs too large, too complex, or too expensive to operate on their own equipment. CSC said. Data can be transmitted to the machine by high-speed or low-speed terminals.

The CRJE service combines the

benefits of conversational time-sharing and remote processing of data in batch form. Subscribers can solve problems, develop new programs, and have the results stored on the machine or printed out at any of a number of terminals.

Price for CPU time is \$.50/sec. Connection time is \$11/hr and storage costs \$1/mo/page (\$12, 36-bit words).

According to the company, the CSC network offers significant economies to large organizations, whether used as a sole source of data processing or for overflow work, because of the wide variety of remote terminal devices that the system can accommodate.

CSC is located in Century City, Los Angeles.

Data Terminals and Digitizer Included With Services

ANN ARBOR, Mich. — Two data terminals for use on time-sharing networks, a capability permitting data file transmission between systems, and a two-dimensional graphic digitizer, comprise the latest services from Com-Share Inc.

The Datapoint 3300 CRT display and the GE Terminus 300 terminal, distributed by Time-Sharing Terminals Inc. of Bethesda, Md., come with a full set of control characters for use on Com-Share's system, and may be used with an acoustic coupler or Bell System data set in either local or full-duplex mode.

Standard features of the Datapoint 3300 display unit include

complete interchangeability with a teletypewriter, a display capacity of 25 lines of 72 characters each, a 60-cycle refresh rate paid to reduce screen flicker, and upper case Ascii characters.

The GE Terminus 300 printer has a 96-character upper and lower case Ascii capability and is equipped with a 118-character stationary carriage. Symbols printed on impact, allow the user to obtain one original and several carbon copies of his transmitted data.

The Datapoint 3300, priced at \$195, is on a three-to-five-day delivery schedule, while the Terminus 300, priced at \$175, is on a 30-to-50-day delivery

schedule, Com-Share says.

A new service, Com-Link, eliminates the need to store duplicate files by establishing a nationwide network of computers interconnected over long distances via voice-grade phone lines.

By typing a one-word command, a time-sharing customer may transfer a file to or from his local system and proceed to read, write, or update a file.

The charge for Com-Link is \$3.00 for each call and five cents each data block (256 words).

A Datagrid Digitizer

An all-electronic digitizer called Datagrid, developed by

Bendix Research Laboratories, is available with Com-Share's system.

Design engineers in a variety of fields reportedly can use the device to selectively convert graphic information into high resolution information for computer storage and processing.

Programs interact with the digitizer to perform three-dimensional calculations from two- or three-view drawings and determine: areas and volumes, lengths of straight or curved lines, angles, intersections, and clearances between components, the company says.

Com-Share, Inc. is located at 1919 West Stadium Blvd.

Meditech Offers Patient Interviewing and Lab Reporting

CAMBRIDGE, Mass. — Programs for automating patient interviewing, clinical laboratory reporting, and hospital census operations are available to hospitals, clinics, and laboratories from Medical Information Technology Inc. (Meditech), a new biomedical computer time-sharing firm.

Meditech's patient interviewing program screens large numbers of patients before examinations by asking a series of questions to which the patient responds using a video display terminal.

One program can be used for a general review of the state of the patient's health in an examination of a particular type of complaint, or for a history of a patient with a specifically known illness such as diabetes or hypertension, the company says.

Another program reportedly can be used to keep track of the number of beds available in a hospital, and the name of

the patient occupying each bed as well as his illness.

A third type of program is employed to maintain records and perform calculations on the output of laboratory instruments associated with blood type analyses.

Other programs under development will be used for patient management, information retrieval, pharmacy inventory, and dietary planning.

Institutions using the company services can lease one or more terminals connected to the company's PDP-9 system. Analog/digital converters will be added to terminals used to monitor laboratory instruments, the firm says.

A fee of \$500 to \$1,000 per month is charged for the system depending upon length of contract and number of required dedicated accesses. This price includes complete system support for users.

installed teletypewriters or other terminals which can access the PDP-9 system.

Complete systems support includes: specification and installation of computer hardware and software, system implementation, user education, and system maintenance and consultation, according to Meditech.

Medical Information Technology Inc. is located at 65 Rogers St.

'Cop' Tailors Program Decks for User Security

FORT LEE, N.J. — A program for proprietary software firms permits automatic tailoring of master program decks to the requirements of individual customers, according to the developer, Data Usage Corp.

Called Cop (Customer Oriented Program), the editing program reportedly

permits the embedding into the customer deck of the user's name or other identifying information. Cop also provides a mechanism for automatically deleting master deck components which have not been purchased by the customer, according to Data Usage.

Cop can be used in conjunction with

another company product, Domatic, an automatic documentation system for IBM 360 RPG programs. Each time a new system is ordered, Cop tailors the master Domatic deck to (1) insert the customer's name; (2) trip software locks which cause Domatic to malfunction if the customer name is tampered with; (3) restrict the memory size to that of the customer's installation; and (4) eliminate modules not purchased by the customer.

Cop operates on the IBM 360/20 and up, and on the Univac 9000 series. Minimum core required is 16K. The program, written in Bal, is available on a 30-day delivery schedule for \$1,000, which includes object deck, source deck, and other required documentation.

Data Usage Corp. is located at 2460 Lemoine Ave., here.

New Data Modem

AUTOMATIC EQUALIZATION. The ADS-448 modulator-demodulator automatically equalizes your data source to the telephone line. No manual adjustments.

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Ads



'Quick Rate' Service Now on Mag Tape

ENGLEWOOD CLIFFS, N.J. — Numerex Inc.'s Quick Rate service, now available on magnetic tape in computer-readable form, has been developed for the shipping departments of companies and government agencies.

The service enables a traffic manager to utilize data processing equipment for applications that include routine, freight-bill pricing and auditing, and transportation planning studies, says the company. The data base of this service includes 1.5-million motor carrier class rates, all Railway Express Agency tariff 33 information, 11B commodity rates, and all package and air express rates. The service is continuously updated as information changes occur. Data may be selected by a user from the Quick Rate data base to fit his particular needs.

The 28-program system, which can assemble all rates for shipping and receiving points within the continental U.S., requires a minimum memory of 128K and operates on an IBM 360/40.

The charge for the magnetic tape Quick Rate service, is levied according to the users distribution pattern and required application. Cost can range from \$1,000 to \$30,000 for the initial service set up, plus yearly updating costs, the company says.

Numerex Inc. is located at 467 Sylvan Ave.

MAI to Expand its Third Party Maintenance Services

NEW YORK — Management Assistance Inc. (MAI) will expand its third-party maintenance services to include a wide range of data processing equipment outside of their own products.

The service division will consist of three regions, based in New York City, Chicago, and San Francisco, plus divisional headquarters currently located in Bryn Mawr, Pa.

MAI's standard rates according to equipment customers in the past remain unchanged to new customers; the new service can be obtained immediately.

Management Assistance Inc. is located at 300 East 44th Street.

Extended 'Ezpert' Produces Pert Networks 30% Faster

ANAHEIM, Calif. - Systonetics Inc. has announced an extension of Ezpert, its package

FP/70 Plans Financing

HOUSTON - A second-generation package for long-range financial planning and annual budgeting procedures has been developed by Bonner & Moore Associates Inc.

Called System FP/70, the package is available for use with IBM 360/30 (65K bytes); IBM 360/40-65; and XDS Sigma 7 (48K words) systems. It will also be available for other machines in the second quarter of 1970, the firm says.

"Once installed, the system en-

Software/Services

ables financial analysts, accountants, or economists to include new information and revise plans or budgets in a matter of hours," said C.N. Feife, FP/70 product manager.

The System FP/70 channels operating data into the computer and generates financial outputs. In budgeting, the system is a tool for control, the company says, because periodic budget runs can compare planned expenditures and income with actual company performance.

Operation programs in the FP/70 package are written in Fortran IV.

A single installation of System FP/70 (IBM 360 and XDS Sigma 7) carries a licensing fee of \$16,000. A multiple installation is \$25,000. Multiple installations may be licensed at \$30,000.

The licensing fee includes an operational System FP/70, user manuals, operation manuals, training, and maintenance for one year. The company states that lease/purchase arrangements are available.

Bonner & Moore Associates Inc. is located at 500 Jefferson Bldg., here.

which produces Pert (Program Evaluation and Review Technique) networks by digital plotter.

The new version of Ezpert is reportedly 30% faster and is operational on IBM 360/G Level Up (100 bytes), CDC 6000 series (32K words), Univac 1100 series, and Burroughs B5500 computers. Ezpert can interface with any Pert/Time report output sorted by date, according to the company.

The package is operational on Computer Industries Inc. and California Computer Products

drum plotters, and on Stromberg Datagraphix and Information International Inc. microfilm plotters.

Uses Microfilm Plotter

With a high-speed drum plotter Ezpert reportedly produces Pert networks 40 times faster and for one-ninth the cost of manual network preparation. With microfilm plotters Ezpert produces Pert networks 4,000 times faster at one-twentieth the cost of manual network preparation, according to Systonetics.

Ezpert automatically produces

plots of Pert networks without manual intervention, the company claims. Ezpert is modularized, and hardware independent; it interfaces directly with a user's Pert/Time system (e.g., PMS/360, CDC P/T, Univac P/T, Burroughs Promis, Honeywell P/T, USAF P/T, and Nasa P/T) and with most computer driven digital plotters.

Perpetual-Use License

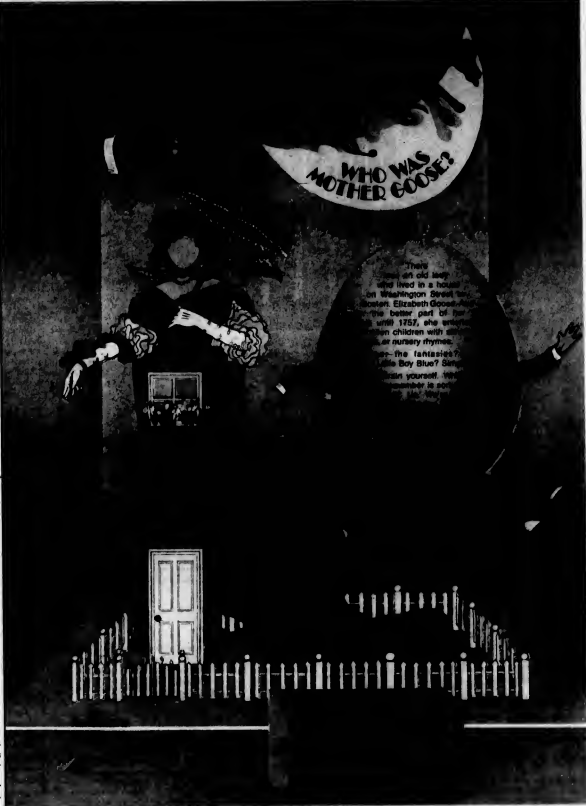
The service is sold under a perpetual-use license for a one-time charge of approximately \$25,000 for the standard pack-

age with standard interfaces. Optional features are available.

The Ezpert standard package is available in either activity or event format. An option permits the user to plot both types of networks. The company reports that Ezpert is warranted by contract and that the package can be installed within 30 days.

Systonetics Inc. is located at 600 N. Euclid St., here.

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Process Control For DEC Minis

CAMBRIDGE, Mass. - Custom designed process control systems, developed for Digital Equipment Corp.'s line of minicomputers, are being offered by Input Output Computer Services (IOCS).

IOCS specializes in developing software for Digital Equipment's PDP series computers with particular emphasis on applying minicomputers to industrial process control. The firm will design, build, integrate, and deliver working systems that include all hardware and software needed to meet the specifications of the user.

"The price and delivery schedule, on these customized items depend upon the magnitude and individual requirements of each job," Thomas Farrington, IOCS president stated.

Input Output Computer Services Inc. is located on 142 Mt. Auburn St.

'Utility Coder/360' Language Manipulates Data-Files

By Glenna Simonetti
Special to Computerworld

CAMBRIDGE, Mass. — A language intended for data-file manipulation that features simple coding and swift execution is available from Cambridge Computer Associates (CCA). Said to be conceived with the user in mind and designed with the goal of simplicity, Utility Coder/360 (UC/360), is now installed at about 20 sites.

UC/360 areas of application are mainly in the creation and maintenance of files; editing and retrieval of data; data evaluation, reduction, and conversion; and data transcription and report generation, according to CCA.

To the user, the UC/360 language might appear to be a curious mixture of other well-known, higher-level programming languages. It shares common traits with them all, yet is unlike any one of them. It is, by design, a special purpose tool and is not intended by CCA to compete with

Fortran, Cobol, Algol or PL/I in overall capability.

The ease of programming and speed of execution of UC/360 are among its strong points. A series of tests were run by CCA comparing its language against Fortran, Cobol, PL/I, and RPG. An address-label printing benchmark was written and executed in each of the languages. The test, according to CCA, resulted in UC/360 being not only the fastest language to program, taking about one-half the time required to program in PL/I, the second fastest, but also the quickest in execution time, taking about 40% of the time required by Fortran G, the runner-up.

Syntactically, UC/360 provides ease of use, readability, and operating efficiency. Language elements are primarily English words, abbreviations, and symbols.

Legibility is achieved by the insertion of optional words which are ignored during compilation. Efficiency is achieved through single-pass compilation that is

claimed by CCA to be "virtually at I/O device speed."

A UC/360 program is written in two sections: declarative and narrative. The declarative portion defines the processing environment for the given task. It serves to designate I/O units, reserves areas of core, and defines limits on output and run-time. The narrative section is the body of the program, performing the actual task.

Language components consist of operators and operands. Operators are the elements which affect processing operations, and are broken down into five groups: input/output, test, data-manipulation, logic-flow, and diagnostic.

Input/output operators control the movement of logical records to and from input/output areas. Some examples are: DISPLAY, READ, SPACE, and REWIND. Test operators, such as NOT, GT, SAME, and EQ are used for conditional

branching to different points of the pro-

gram. Data-manipulation commands enable the movement, conversion, and formatting of data in core. Instances of these are: COPY, RUMP, UNBOL, and PACK.

The logic-flow group, such as GO TO, PERFORM, and CALL is used to change the sequential flow of executed instructions.

Finally, the diagnostic operators, (among them EJECT, DUMP, and MAP) provide the capabilities for listing control and debugging.

On the other hand, the operands, which are comprised of literals and variables, define and identify data for test and manipulation operations.

From the flexibility standpoint, several capabilities should be noted. Data to be operated upon may be binary, packed numeric, hexadecimal, or in character form. The manipulation of data can be performed on the basis of records, fields within records, or characters within fields.

Internally, data is stored in EBCDIC format, thereby affording greater efficiency in data-manipulation operations. However, arithmetic operations are not as efficient, because conversion to binary is required before operation. To alleviate this problem, external Fortran subroutines are recommended whenever extensive computations are called for.

In addition, UC/360 offers other features, some of which may more often be found in assembly language processors. There is, for example, the capability to indirectly reference counters and to access variables by indexing. By means of the "truth-switch", an option is available to enable or inhibit the execution of a command. There is also the possibility of utilizing pseudo-ops, which are recognized as commands to the processor at compilation time.

CCA offers UC/360 in two versions, each designed to operate in a given IBM/360 environment. The OS version can be run on any IBM/360 configuration, while the DOS version requires at least 32K bytes of core. Subsequently, there is upward-compatibility from the DOS version to OS.

Utility-Coder/360, according to CCA, was developed primarily with the non-professional programmer in mind. The aim was to provide a limited, specific capability with the least amount of training. Although the non-programmer may find that UC/360 is not the easiest language to begin working with, it nevertheless achieves its purpose of providing an effective file-management tool in a way which is quick-and-easy.

The DOS version of UC/360 has been priced at \$4,500, while the OS version costs \$6,500. Installation and an on-site one-day training class are included. Additional training classes can be provided at \$150/day plus expenses. CCA also said that it will provide maintenance for the system, including the fixing of bugs that might develop.

CCA is located at 380 Putman Ave.

Cobol Translator 'Casper' Now Available for Purchase

SAN RAFAEL, Calif. — A version of Casper, the conversion package that translates IBM 1401, 1440, and 1460 programs to IBM 360 Cobol, is now available for purchase from Computer Advisory Services Inc.

The system, previously offered as a service, operates under OS/360 MFT or MVT.

The purchase price of \$11,950 includes installation within 30 days on the user's system, an operation manual, and updating of changes for one year.

Computer Advisory Services Inc. is located at 710 "C" Street, Box 461, here.

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Computer center and executive offices located in Wilmington, Delaware.

Data Terminal Reduces Cost of Health-Care Claims

By Drake Lendell
On New York Bureau

NEW YORK — A medical data terminal designed specifically for the transmission of medical and health-care claims under such programs as Medicare, Medicaid,

and Blue Cross is now available. The system, which was developed by Western Data Products of Los Angeles under contract to Blue Shield of Virginia (Richmond), will cut the cost of health-care claims for Blue

Shield and Medicaid by over \$1 million/year in Virginia alone, a Blue Shield spokesman said. He predicted that savings of \$60 million a year could be achieved if the system were used throughout the country.

The terminal, Model 1024, uses an alphanumeric keyboard and specially designed lower switches for data entry into a 256-character buffer memory. It is linked to the phone network by either a Bell system data-access arrangement or a standard acoustic coupler, and transmits at a rate of 10 char/sec.

The present system is linked to Blue Shield's 360/50 in Richmond, equipped with an IBM 7772 audio response unit. The computer evaluates all incoming claims and informs the physician immediately whether they are acceptable or not, thus eliminating costly billing paperwork, the Blue Shield spokesman said.

All claims entered into the computer are paid the same day, he added, or in the case of Medicaid claims, the same week. The doctor does not have to submit any other information in order to receive payment for claims against either Blue Shield or Medicaid.

Western Data Products is presently manufacturing 2,000 of the units for Blue Shield, which will begin installing them during May in doctor's offices in Virginia. The units will rent for approximately \$25/mo and will be available to all doctors in the Virginia Blue Shield area within 18 months.

According to Robert C. Dzenler, vice-president and general manager of Blue Cross and Blue Shield of Virginia, the organization will be able to double its capacity for claims handling with the new system. Another benefit, he said, is that "the computer will red flag any patient who has seen too many doctors during the past month, or any doctor who has seen too many Medicaid patients; or any doctor who has been paid more than the maximum allowable amount during any one month."

In addition to its present use, the developers said that the unit could be used in the future to allow doctors to communicate with large data bases being developed in such fields as symptoms, diagnosis, drug compatibility, poison antidotes, burn therapy, and other information sources. At present, the developers are talking to the National Institutes of Health about allowing access to some of their data bases for users of the system.

While the system is presently being sold and leased by Blue Cross and Blue Shield of Virginia to its members only, Western Data said they would also sell the system to other interested doctors or other interested Blue Cross affiliates around the country.

Western Data Products is located at 2321 Pontius Ave., here.

Communications Unit Uses Infrared Light To Replace Hard-Wire Cable Connections

LOS ANGELES, Calif. — A system designed to avoid cable connection by using infrared light to transmit data has been announced by Computer Transmission Corp. (CTC).

Called the Optran Model 1815, the device is a full-duplex, point-to-point, communication system linking high-speed data terminals with a central computer facility, according to CTC. Opttran reportedly operates over the 1,200 to 250,000 serial-bit/sec range.

Claimed to have a range of up to one mile under ideal weather conditions and a useful range of from 500 to 3,000 feet, depending upon local climatic conditions, the device can be used in any installation where the two optical units are in line-of-sight contact and free from accidental obstruction, according to Ray W. Sanders, CTC president.

The Opttran system is said to consist of two terminals, each consisting of an optical unit and an interface unit. The optical unit features a telescopic sight for facilitating alignment with the opposite terminal. The interface is typically installed near the terminal or computer, up to 250 feet from the optical device. A standard EIA 232C (Model 1815A) or high-speed interface (Model 1815B) is provided for connection to the data terminal equipment.

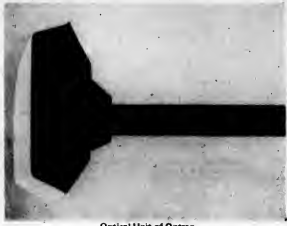
The Opttran transceiver appears as a standard data set to the computer, or terminal, and thus requires no special software, according to CTC. Since FCC licensing is not required for this type of device, no delays are encountered in changing locations, CTC said.

The optical unit is intended to be mounted on a standard 1-inch (2-3/8 in. O.D.) pipe and may be rotated 360° in azimuth and 40° in elevation.

The Opttran Model 1815A is priced at \$2,900. The cost of the

1815B is \$2,950. Both units are currently available on a 30-day delivery schedule.

Computer Transmission Corporation is located at 1508 Corner Ave., here.



Optical Unit of Opttran

Data 100 Has IBM-Compatible Terminal

MINNEAPOLIS, Minn. — A plug-to-plug compatible replacement for the IBM 2780 data transmission terminal has been announced by Data 100 Corp.

Consisting of a 300-line/min printer, a 300-cst/min reader, and a control console, the system features modular design, which enables the user to install the system best suited to his needs.

The system offers either half- or full-duplex operation and uses two 1,000-character buffers. Ascii and Ebcidic, compatible code versions are available with transmission rates up to 4,800 bit/sec. Standard features include automatic error detection and recovery, automatic answering/disconnect, and automatic turnaround. An invalid-character and multiple-punch check, and multipoint and point-to-point line control are also standard.

Optional features include horizontal format control for



70-1 Data Transmission Terminal

the line printer, data compression/decompression, a 400-line/min printer, and transmission rates up to 9,600 bit/sec, the company says.

The control console provides visual indication of system status and permits manual control of the various functions.

Drives Handle 800, 1,600 Bit/In. Tape

TULSA, Okla. — Two plug-to-plug compatible magnetic tape drives with the capability to use both 800-bit/in. NRZI, and 1,600-bit/in. phase encoding, are available from Telex Computer Products.

The new transports, the 4852 and 4862 are designed to be direct replacements for IBM 2401 tape drives. The 4852 at 75 in./sec is intended to replace the IBM 2401, Model 5; while the 4862 at 112 in./sec is designed to replace the IBM 2401, Model 6.

According to Telex, the new drives are identical in configuration with their IBM counterparts and use the same IBM power and signal connectors. Computer interface circuitry, programs, and tape loading are also said to be identical.

The new transports are a continuation of the Telex 4700/4800 series that features the patented, positive-pressure pneumatic drive, said to provide gentler tape handling than competitive units.

The 4852 and 4862 drives are currently in production and available on a 60-day delivery schedule.

The prices for the 4852 are \$480/mo. or \$19,900 purchase, and the prices for the 4862 are \$540/mo. or \$25,170 if purchased. Telex rental prices include maintenance, as well as unlimited service, the company claims.

Telex Computer Products is a division of the Telex Corp. The address of the firm is Box 7626, here.

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British Design Data Entry System

By James H. Bonnett

CW European Correspondent

LONDON — A British designed, data preparation and processing system, the Trendata 70, which provides facilities for multiple keyboard entry of data onto magnetic tape for subsequent computer processing, is being offered by Trend Electronics Ltd., of High Wycombe, Bucks.

The basis of the system, a General Automation computer purchased as OEM equipment from the U.S. manufacturer, offers storage capacities of between 8K and 16K, 16-bit words.

Other equipment used in the Trendata 70 system includes a disk file, used to store software routines and input format programs; and a magnetic tape output unit. Both are manufactured by Control Data Corp.

Full display facilities allow the operator to check the character entered. When an error is detected, the operator can backspace using an error key, and correct the character, according to the manufacturer. Up to 40 keyboards may be accommodated within the system.

System operation is controlled by a supervisor console, which has a low speed printer, paper tape input and output units, a standard alphanumeric keyboard, and a panel of operator display lights. This enables a supervisor to keep a check on work in progress and to pass data from the temporary disk file to the magnetic tape output unit.

Up to three supervisor stations may be included within the system giving tight control over a small number of terminals, according to the firm.

300 Line/Min Printer Has Oscillating Bar

WESTBURY, N.Y. — A 300-line/min printer, available from Datamark Inc., features an impact mechanism, called an oscillating bar.

The bar reportedly provides a novel method for moving one or more linear type fonts etched on a metal strip fastened to a motor-powered carrier with a lateral excursion.

The 300-line/min printer prints 132 columns with a 64-character set. Standard line spacing is six line/in., with eight line/in. as an option. The paper carriage can accommodate 4-3/16 to 17-25/32 inch stock.

Multiple copies of up to six parts are available with nine to 12-pound weight paper with single-shot carbon. The printer takes pressure-sensitive paper and multi-line masters. Vertical alignment is continuously adjustable within one line while operating, the firm says.

Standard character set is 64 and 96 characters; non-standard spacing is also available. Eighty, 120, and 160 columns are offered as options. Print character sets are Cohol, Fortran, Fieldata, IFA, ASCII, and EBCDIC with customer-selected

fonts available, according to Datamark. Any special coding is made to customer specifications.

Available interfaces include Digital Equipment Corp. PDP models; IBM 1130s, 1620s, 1800s, and 360s; Interdata Models 2, 3 and 4; and Data General, General Automation, Univac, GE, Hewlett-Packard, RCA, Varian, and Honeywell models.

systems/ peripherals

The price of the oscillating bar printer ranges from \$10,000 to \$15,000, depending on the number of columns and interface.

Delivery is 60 to 90 days. A 90-day warranty is included and the company says that rental rates are offered as a function of time. A maintenance staff of factory-trained service engineers supports field installations, according to the company.

Datamark Inc. is located on Cantigue Road, here.



300 Line/Min Oscillating Bar Printer

Camera, Tape Drive Added for Beta COM

NEWTON, Mass. — A camera and tape drive have been added to the options available with Beta Instrument Corp.'s Beta COM 600 computer output micro-film system.

The new camera can use 105, 70, 35, and 16mm film. The 105mm film is used to produce microfiche prints that allow as many as 224 pages of data to be placed on a 4- by 6-inch piece of film.

The camera permits film movement in four directions so that microfiche can be generated in any format compatible with present indexing and retrieval techniques, according to the manufacturer. The device is also capable of a high-reduction ratio, permitting the generation of two images, side-by-side, on 16mm film. This is said to increase the storage potential of microfilm cartridges by a factor of four. The tape drive permits the user to read 1,600 bit/in. phase-encoded tapes without time-consuming intermediate conversions, according to Beta.

Both the camera and tape drive options

will be available for delivery during the second quarter of 1970. The price for the camera has been set at \$15,000; the magnetic tape drive will sell for \$21,000. Beta Instrument Corp. is located at 377 Elliot St.



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The Memorex 1603 Microfilm Printer is reliable, efficient, inexpensive and on-line. Direct-on-line.

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It's the simplicity that makes the price right: \$895 a month for the 1603 (including maintenance) compared with the \$2,000 or \$3,000 you'd expect to pay for non-simple off-line COM systems. Or even a line printer.

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\$895 a month.

Put them together and you have all the COM you're ever likely to need.

If you haven't already evaluated your needs against the 1603 and its low price, you should.

Write: Memorex, Santa Clara, Calif. 95050.

MEMOREX

Strip Printers Operate at 30 Char/Sec.

KING OF PRUSSIA, Pa.—A 30-char/sec. digital impact strip printer is available in a portable and a desk-top model from Dateline Inc.

The units weigh about four pounds each and feature drop-in paper loading and straight-line threading. Normal operating sound level is low for this type of device, according to the company.

Characters about 1/8-inch high, nine to the inch, are printed from a 64-character Ascii subset (full alphanumeric plus symbols) with a corresponding six-bit code code.

Mobile Printer

The portable model, a 3064-M mobile strip printer, is an instantaneous information receiver, interfaced with a remote computer or communications center. This device can receive information without query but can also be interfaced with data systems to receive and record replies to queries, according to the company.

3064-M Mobile Strip Printer

The 30-char/sec. printing speed is asynchronous with both models.

Options available with the mobile strip printer are: serial or parallel data buffer register, serial data buffer register with autoprime command, external paper advance, autostart operation using carrier control, and code conversion.

The Model 3064-M costs \$615, which includes Ascii electronics, power supply and case.

Desk-Top Printer

The desk-top model, the 3064-C, is a data communications receiver. Interfaced with a remote computer, it can be used for applications such as inventory reports, sales listing, and printing out stock quotations.

The Model 3064-C receives information without query and can be interfaced with most data systems to record replies, according to the company.

The desk-top model costs \$555, which

includes Ascii electronics, power supply, and case.

Delivery is 30 to 45 days for both units. Dateline Inc. is located at 181 S. Boro Line Road.

Tape Reader Device Has Instant Rewind

PALO ALTO, Calif.—A device for Hewlett-Packard and other digital computers reads punched tape at speeds up to 500 char/sec and rewinds for immediate

dp accessories

reuse, according to Hewlett-Packard Co., the manufacturer.

Tape from the HP 2758A Tape Reader Rewriter requires no special threading, the company says. In using the device, an operator removes the tape from its storage canister, inserts the tape into the reader, and snaps the canister into place. The tape is then read and automatically reloaded back into the canister with its leader on the outside of the roll, according to the company.

The 2758A reads tape photoelectrically, character by character using standard one-inch, eight-level coded tape, made of material with less than 60% transmissivity, according to the company.

Opaque and oily tapes can be intermixed with no adjustments, the company claims. Metal-mylar tapes cannot be used in the canister. However, they can be read, the company reports. The device has a tape capacity of 250 feet.

The Model 2758A costs \$3,000. An interface kit for any HP computer costs \$600. The company estimates delivery at 60 days.

Hewlett-Packard Co. is located at 1501 Page Mill Road.



2758A Tape Reader Rewriter

Teletype Enclosure Reduces Noise 90%

SAN JOSE, Calif.—A reduction of Teletype noise by up to 12 decibels (90%) is reported as the main feature of an acoustic enclosure offered by Data Terminals Co.

Five layers of sound-absorbing material are used in the Teletype enclosure 700 series which reportedly provides Teletype Models ASR and KSR 32 and 33, as well as Bell/TWX models, with maximum sound insulation.

Access to the paper tape reader and punch with fast tape and paper loading were company design considerations. Pivoted panels allow for easier access and use of all operator controls, according to the company.

The enclosure may be mounted on a standard Teletype stand or placed on a desk or table top. Available as an option is a telephone/coupler folding shelf.

Priced from \$139.50 to \$199.50, the 700 series Silent Type enclosure is available for delivery within 30 days.

The address of Data Terminals Co. is P.O. Box 5583, here.

If your office isn't exactly surrounded by good keyboard operators, we can train as many as you need.

We specialize in increasing the productivity and accuracy of computer input equipment operators—experienced employees as well as new operators.

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Micro/Magnum Computers Function in Hazardous Environment

NORTHBRIDGE, Calif. — Two micro-magnum digital computers, described as minicomputers designed for use in hazardous environments, are being offered by American Computer Technology Inc.

Designated ACT-16 and ACT-18 Micro/Magnum Digital Computers, the equipment features: one- μ sec full memory cycle time, six memory index registers,

command structure, parallel I/O busing, total readout on front panel, direct memory access, integrated circuit and MSI electronics, lithium core expandable to 65,536 words (either 16 or 18 bits).

Applications of the instruments are as a time-share central processor, data controller, communications switch, automatic test sequencer, and process and control computer, according to the company.

Presently available software (not included in basic price) includes: relocatable assembler (single or double pass), Basic, conversational Fortran, multiple precision floating point routines up to seven words long, mathematical subroutines, special real-time packages, hardware diagnostic routines, and several application packages covering satellite navigation, fire control, radar tracking, telemetry data handling, process control, and real-time equipment testing.

Options

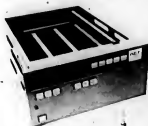
Standard optional modules include: core memory in increments of 4,096

words with one- μ sec cycle time, interrupt unit, MSDR, high-speed paper tape reader/punch, and magnetic tape read/write units.

Basic prices are \$9,800 for the ACT-16 and \$10,500 for the ACT-18. Basic price includes a memory of 4,096 words,

power supply, bootstrap loader, direct memory access, rack mount chassis, power supply, and a one-year guarantee, according to a company spokesman. Delivery is 90 days.

American Computer Technology Inc. is located at 8740 Shirley Ave., here.



ACT-16 Micro/Magnum Computer

'Intercomputer' Coupler Offered

TORRANCE, Calif. — An "intercomputer" coupler, available from Time-Zero Corp., interfaces third-generation processors with satellite minicomputers permitting system function expansion to include time-sharing and communications systems.

The model 9035 Intercomputer Coupler presently interfaces a Univac 1108 or an IBM 360/75 with an Interdata Model 4 minicomputer. The coupler can also interface with Digital Equipment Corp. equipment and the Varian 6201.

The coupler allows asynchronous, core-

to-core, bi-directional data communications between the I/O channel of the host computer and the high-speed memory bus of the minicomputer.

The device executes, upon command from either computer, block transfers up to 128 records of 144 bits each, according to the company. The CPU resident software determines the addressing of data transfer in and out of the buffer, the company continues.

The Model 9035 reportedly provides real addressing for reading and writing

Systems/ Peripherals

into the minicomputer core memory and can transfer 50K 36-bit words/sec.

Actual transfer rate depends on the activity level of controllers or processors on the minicomputer memory input lines, which are shared on a cycle-stealing basis, the company says.

The unit is panel mounted with a self-contained power supply. The Model 9035 costs \$8,100, and delivery is eight weeks.

Time-Zero Corp. is located at 3530 Torrance Blvd.

\$3,900 Mini Console Uses Impact Printer

CAMBRIDGE, Mass. — A minicomputer console, priced at \$3,900, combines the keyboard and printer functions of tele-typewriters with the recording and storage functions of magnetic tape cassettes, according to the manufacturer, Computer Devices Inc.

The 8310 console uses the same subset of the Ascii as the Teletype Model 33 and provides nine on-line and off-line modes of data handling.

The impact printer of the console can produce multiple copies on preprinted forms. An electronic keyboard interlock and parity check help to eliminate errors, the company claims. Printing speed is 15 char/sec with a standard 80-character line, or an optional 120-character line.

The tape cassette drive has a 100,000-character capacity with read and write speeds of 300 char/sec. Operation is incremental by character.

Direct interfaces to DEC PDP-8/j and -8/L; Honeywell DDP-116, 416, and 516; Varian 6201; Computer Automation PDC 808; and Data General Nova are available at no additional cost. Others will be available on special request, the company states.

The 8310 console will be available in June on a 30-day delivery schedule.

Computer Devices Inc. is located at 167 Albany St.

Spiras Reduces Price Of General-Purpose Mini

WALTHAM, Mass. — Spiras Systems Inc. has announced a price reduction on its general-purpose minicomputer, the Spiras-65.

Originally priced at \$14,900, the cost per unit is now \$12,400.

Spiras Systems Inc. is located at 332 Second Ave.

HETRA

WHO? WHAT, IS HETRA?

HETRA, derived from heter- or hetero-

heter- or hetero- comb form [MF or LL; MF, fr. LL, fr. GK, fr. heteros; akin to GK he is one—more at SAME]
1: other than usual : other : different < heterophyllous>
2: containing atoms of different kinds < heterocyclic>

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education

Local Schools Rally to Aid 103 Stranded by EDP School Closing

By Kate Rachtstein
CW Education Editor

BOSTON — As a result of prompt, practical efforts by several data processing schools, many state officials a large portion of the 103 students "abandoned" in a recent computer school closing here will complete their training at other institutions.

The school, the Institute of Computer Technology (ICT), closed without prior warning on Friday, Sept. 16, because of "financial difficulties" (CW, Jan. 28). Disarrayed students immediately contacted the consumer protection division of the state attorney general's office, and within days nearly a dozen local data processing schools had done the same. Assistant Attorney General Laurence R. Buxbaum then began the arduous task of examining claims and trying to make satisfactory arrangements for the stranded students.

Blood from a Turnip?

Buxbaum noted that tuition refunds were not a likelihood "because we don't know that there's any money there to be returned." One report alleged that the school's liabilities exceed \$50,000. The assistant attorney general said that a receiver now has been appointed to conserve whatever assets there might be.

According to Buxbaum, about 75%-80% of the students enrolled at the time of the closing indicated a desire to continue their education with one of the independent or manufacturer-oriented schools. "I would guesstimate," he said, "that about 75% of those would be able to." Several others, he added, had decided not to continue.

For the unpaid balance of their ICT tuition, they could enroll in similar classes at another school. Upon completion, the attorney general's office would certify completion of the ICT course. Otherwise, the students could enter classes at other schools for a price determined by that school, in which case the diploma granted would be that of the "adopted" school.

Probably the majority of those placed will be having the ICT course taught out to them," said Buxbaum.

"There will, in all likelihood, be further action on our part, although we're still looking for evidence of conscious fraud," Buxbaum stated.

Of the state agency's efforts in their behalf, a student spokesman, Kevin O'Connor, said, "They've done a good job... We certainly congratulate them on the job they did as far as setting up the meetings with the interested schools."

Dough Nuts or Doughnuts

"Many of these schools are more or less set up like a doughnut shop with these franchises," he said, "and they have about as much right as a doughnut shop to teach any type of educational matter."

The students' primary purposes, he said, were "to promote as much publicity as we could and to try and get these senators and representatives and other influential people to help us out and to prevent it from happening to somebody else."

Massachusetts has pending a statute that would regulate licensing of private data processing schools. To avoid a recurrence of January's events, Buxbaum stated: "I feel very strongly that a licensing procedure such as that proposed by

the attorney general would be an exceptionally useful tool in dealing with this kind of problem. As they've evidenced by their participation in this case, I think also that the industry should be conscious of the legions and of those who, for one reason or another, may give the industry a bad name. It's got to be something other than control residing in an area other than the industry itself, but the industry should work in combined efforts to try to avoid this kind of problem."

CDC Announces Formation of New Control Data Education Institutes

MINNEAPOLIS — Control Data Corp. has announced the formation of Control Data Education Institutes (CDEI), a new educational organization to provide multi-level computer training to customers, management, employees, and the general public.

The organization is comprised of five new instructional areas:

- The Control Data Institute for Computing Technology, to provide entry-level, career-oriented, tuition courses in computer programming, computer hardware concepts, and maintenance. These are presented to the public in sixteen institutes throughout the U.S.
- The Control Data Institute for Advanced Technology, to provide instructional and technical seminars at an advanced level on operating systems, applications, and systems analysis. The

seminars are offered throughout the country to the general public or upon request, are designed to meet the needs of specific industries.

• The Control Data Institute for Management Education, to provide non-technical and semitechnical courses and seminars relating to supervision, management, and planning systems including minority group dynamics, financial management, economic analysis, and labor relations programs.

• Control Data's Consolidated Education Center, the international arm of CDEI.

• Automation Institute of America, a subsidiary of CDC and a division of CDEI. This is a franchisor of independent businessmen, designed to provide them with a curriculum and other instructional tools for teaching programming and key-punch operations.

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Alternatives to Personnel Shortages, Shortcomings Probed at AMA Briefing

By Kate Rachelsa

NEW YORK — The catch phrases "peopleware," "peopleware," and "peopleware" characterized the topics of discussion at a recent American Management Association (AMA) Briefing entitled "The EDP People Picture."

Most of the 86 attendees were pleased with the three-day session, although opinions on the relative merit of individual presentations varied widely. A clear majority evaluated the briefing as "good," but preferences seemed to polarize around either the concrete, statistic-prone lectures or the more theoretical ones.

'Humanizing' the Industry

Several subjects received emphasis. A number of speakers appealed for injecting data processing with more concern for the individual. Eleanor Irvine, director of New Concepts, Inc., stated, "We get so bogged down with details that we forget the importance of interrelationships." Cmdr. Grace Hopper, USNR, director, Navy Programming Languages Division, underscored this idea saying, "I think we can make our programmers more useful and productive... We need to stop administering personnel and start administering people!"

Down to Brass Tacks

The industry's predicted manpower shortages and alternative means of meeting them also came in for considerable coverage. Surprisingly, however, the various testing procedures received little treatment. Two notable presentations, by Thomas White, AFPS director of public information and educational services, and Joseph Surkis, Oyer Professional Computer Services, did offer some statistical yardsticks for personnel evaluation and selection.

DPMA Saturation Drive Continues

PARK RIDGE, Ill. — Industry personnel, long since jaded by large numbers of unimaginative, mimeographed meeting announcements, may look twice at the shower of punning, multi-colored invitations being issued for the DPMA's 1970 International Data Processing Conference and Business Exposition in Seattle, June 23-26.

According to Richard Torp, DPMA conference coordinator, the reason for the variety of invitations (12 in all) is strictly promotional.

"It's a multiple-part program designed several months ago to stimulate interest in the conference on the part of both exhibitors and advertising people," he said. Torp realizes that Seattle isn't necessarily the answer for every exhibitor, but notes that response to the "go get 'em" campaign has been in line with DPMA's expectations.

Meanwhile if you're on the list, hang on — this shower is expected to continue until around the end of March.

The problem of communicating EDP needs to management attracted much attention, and the presence of personnel from both areas sparked lively discussion. Having heard pertinent presentations by Ursula Farrell, IBM, and Paul J. Harbough, Mobil Oil Corp., one attendee stated, "You can bet there'll be some changes made in my department."

In a well prepared and executed presentation, Mr. Farrell, described the elements necessary to a meaningful management-education effort, citing carefully chosen location, attendance target, techniques, and topics as key elements. Harbough suggested "adopting a guy in personnel as your recruiting specialist" as

at least a stop-gap solution to the ever-present communications gap.

Just one man can be of great value; he said, if he is conversant with the tools of the trade and the projects underway. He also cautioned against providing a hiring agent with job specifications so tightly written that they constrict the flow of applicants.

The audience was comprised of roughly two-thirds data processing managers and one-third personnel administrators. An AMA spokesman noted that attendance was considerably below the anticipated figure, and added that in more than a few cases, tighter 1970 budgets were limiting participation in this kind of forum.



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Afips Announces Spectrum of Special Events to Augment SJCC Exhibits, Talks

MONTVALE, N.J. — A number of special features have been arranged by the American Federation of Information Processing Societies (Afips) to accompany the exhibits and technical sessions at the Spring Joint Computer Conference, May 5-7. On Tuesday, May 5, Hopewell, N.J.'s young Resistors (Radically Emphatic Students Interested in Science, Technology, and Other Research Studies) will handle their own session for the first time at a joint conference. Open to all individuals of a "pre-university" status, the meeting will feature technical presentations by junior and senior high school students. For "oldsters" not qualified

for the Resistors' attraction, a venture capital panel has been scheduled for the following evening. This meeting will feature a panel discussion of the considerations of venture capital in relation to the needs of companies in the computer industry and presentations by Timothy

Collins, president, Collins Securities Corp. and Peter D. Danforth, partner, Gunwyn Ventures.

The panel, according to Afips, will outline the type of information that the investor requires and the relative importance he places on management, product, market, and financial skills. Conversely, management's considerations in the evaluation of their potential partners will be treated.

Societies

An announcement states that the session should also be of interest to prospective employers evaluating stock options in small companies, in that the factors they should consider are similar to those of a potential investor.

Women's Liberation
To combat the "computer widow" syndrome, a special ladies program has been arranged for wives who want to get away from it all, but aren't up to three days of exhibits and technical talks. This year's features will include "Designing Your Habitat," by decorating designer Herb Taper, and "I Haven't a Thing to Wear," by Judith Kieth, television fashion humorist. A special luncheon and visit to the historic Smithville Inn are also planned.

Rounding out the list of special attractions will be a computer science theatre, comprised of two theatres off the main exhibit floor. They will operate concurrently Tuesday afternoon and all day Wednesday and Thursday showing selected films on the computer-related subjects of hardware, software, applications, and implications.

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EDP Bibliography Lists Available Texts, Handbooks

COLORADO SPRINGS, Colo. — A current bibliography of books on various aspects of the computer field has been published in the University of Colorado's "Computing Newsletter." Editor J. Daniel Couger, an associate professor of management science, compiled the list based on recent information from 75 publishing houses.

Couger said that an original compilation three years ago included more than 200 books from 48 publishers. The 1970 listing shows some 420 volumes. Also the early list revealed some "gaps" in coverage, some of which have now been filled, according to Couger. "Three years ago it was not uncommon for an author to add a chapter on computer concepts to a book which was traditional in all other respects. The books being published today," the newsletter states, "for the most part, have the computer content integrated throughout all topic areas, where appropriate."

Listed books are categorized according to subject area, style (textbook, reference, or handbook), and type of presentation (programmed instruction, case method, readings, or conventional). Couger says that yearly updates are planned.

Copies of the bibliography are available for \$2 from "Computing Newsletter," University of Colorado, Cragmore Road, 80907.

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TV Firm Uses Burroughs System for Time Slots

NEW YORK—Storer Television Sales Inc. has ordered a Burroughs B3500 system valued at more than \$630,000.

The applications will include an inventory control system for television commercials and time slots processed in a complete on-line environment, according to Charles W. Schellenger, company treasurer.

"The B3500 was acquired for on-line processing, and the sys-

tem's multiprocessing and communications capability will carry us into many kinds of applications," said Schellenger.

Major components of the system will include a central processor with 90,000 bytes of memory, card reader, printer, magnetic tape units, and random access disk file.

Organized in 1961, Storer's primary function is selling television time to nationwide ad agencies.

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Orders and Installations

The University of Paris has installed a Control Data Corp. 6600 for use in a world-wide high energy physics program to be conducted in conjunction with the European Organization for Nuclear Research in Europe and Brookhaven, in the U.S. The system will also provide the university with sufficient computing capacity for its other data processing requirements.

Transport Data Communications, Inc., Greenville, S.C., has ordered two Univac 418-III real-time systems valued at \$14.6 million. They will be utilized as the heart of an on-line real-time complex serving trucking firms. The Great Northern Railway has also ordered two Univac 418-III, valued at \$1.3 million. These systems will be used to increase the performance of its transportation service control, a system that provides instantaneous data for management and control of freight cars.

Systems Engineering Laboratories, Inc. Oak Ridge, Tenn., has received an order from Union Carbide Corp.'s Nuclear Division for an 810B system with peripherals and a 64 chan-

nel high-level multiplexer. The 810B, valued at \$100,000, will be used for control of a gaging system.

A Control Data 6600 has been ordered by the University of Brussels to process its administrative management information, provide computer training for students, and cover scientific research. The system will be the most powerful in Belgium.

The Univac 9000 series is being ordered for a variety of uses: the 9200 system has been installed at the Abraham Baldwin Agricultural College, Tifton, Ga., for internal business operations and for maintaining student records and grades. Another 9200 has been ordered by the Global Collection Agencies, Inc., Hicksville, N.Y., to be used for debtor dunning and skip tracing. A 9300 system was installed at Wilcox-Walter-Furlong Paper Co., Philadelphia, Pa., to assist the firm's management in making decisions concerning growth, industry trends, and long-range trends. The Ricegrower's Cooperative Mills Ltd., Leeton, Australia, ordered a 9300 system

to aid in its budget comparisons, stock control, and service bureau operations. The 9400 has been installed at the Akers Motor Lines, Inc. Gastonia, N.C. The system will be used for analysis of the present traffic and operations, records of fuel and mileage, routing, interline transfers, state and federal tax schedules, and inter-terminal communications.

Chrysler Corp. in Phoenix, Ariz., has ordered two General Electric GE-Pac 4020s. The system will be the heart of an automation system being provided by GE for testing automatic transmissions at Kokomo, Ind. This is the first phase of three, which will be complete by the end of 1971.

The Tunbridge Wells Equitable Friendly Society of London has installed an NCR 100 at its Tunbridge Wells headquarters. The installation will be used for processing contributions made by its members, maintenance of sickness benefit data, and for the handling of members' accumulated surplus accounts and mortgages.

Contracts

A \$100,000 contract for the design and development of three reproduction models of a card, printer and three reproduction models of a 128 column line printer, has been awarded to Dateline, Inc. by Nucor Computer Co. of Morrisstown, Pa.

Univac has received a \$106,240 contract from the Navy ADPE selection office for its Univac 1180 system. The system will be used in the processing of command and management information and for software development.

Comserv, Philadelphia, Pa., has signed a \$1.7 million contract with the Burroughs Corp. for its TC500 terminals. The TC500 will be used in conjunction with Comserv's Calt system.

computer-compatible taped data which other components convert to alphanumeric print-out. Ampex has also begun deliveries of core memories under a \$340,000 contract to Stanford Research Institute. The Model RG memories will be used for computer-aided research into the possibilities of giving machines artificial intelligence. Litton Industries is receiving core memory stacks from Ampex to be incorporated with other data processing systems. The stacks are valued at \$1 million.

An agreement between Cambridge Computer Corp., New York, and Drug Distribution Data has been reached to extend CCC's facility management contract to design, implement, and operate data processing systems on a national basis.

Correction

The \$100,000 contract from Philco-Ford for 13 Model 640 tape systems was awarded to Electric, not Electric Computer Corp. of Dallas.

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Athena to Manufacture Devices To Read Existing Credit Cards

BEDFORD, Mass. — Athena Systems, Inc. has been formed to provide low-cost devices that will read existing credit cards.

The new company will manufacture and market a line of credit card readers for industrial and retail use. The industrial model, estimated at \$15 million over the next three years, includes badge reading, data collection, and certain types of inventory applications.

In retail uses, the Athena card reader is expected to be employed at gas stations,

K/Tronic, headquartered at 10601 Saratoga-Sunnyvale Road, Cupertino, Calif., is a privately-held corporation.

* Princeton Informatics, Inc., a recently-formed company, grew out of a private consulting practice which had been greatly involved in time-sharing.

Pil has added an in-house computer facility to its extensive use of commercial time-sharing services.

In choosing the IBM 1130, a commonly used small computer, Pil will be able to generate many programs that can be used without extensive changes by customers. In addition to its in-house facilities for servicing the small- and medium-sized customer, Pil can handle customer projects via its telephone line connections to large-scale, fast computers. At present the two large computers with which Pil is connected are the Univac 1108-VIII and the CDC-6600.

New Companies

airline counters, and department stores.

Athena's first production model is expected in May, and first deliveries in June.

The company's machine reads standard plastic credit cards by sensing the raised numbers on the cards. The patented mechanism used is an array of spring-loaded magnetized pins.

Initially, the company will market the reading device to credit terminal and cash register manufacturers and major credit card distributors that build their own terminals.

In the near future, the company will offer a transaction terminal that will record customer transaction on magnetic tape. The tape cassette can be sent to a central processing station for direct input to a computer or fed to a data terminal at the retail location for transmission to a computer over telephone lines.

Voice Response, Data Communications Firm Formed

STAMFORD, Conn. — Dash Data Systems, Inc. is a newly formed company which has operated for the past seven months in developing a line of products and systems within the computer-generated voice response and data communications area. Systems are ready for delivery within 120 days after receipt of order.

Dash's first line of products are dedicated to fulfilling data management requirements for computer-controlled information systems, utilizing on-line, real-time inquiry response or batch-oriented data entry and communications.

* Computer Audit Corp., a computer software development and distribution firm based in the Washington metropolitan area has been formed.

Computer Audit acquires fully developed and operational software packages for marketing. The units currently being handled by the firm are all generic to computers and application independent.

Among them are: Easytrieve/300, an information retrieval and reporting program for the IBM/360, RCA Spectra 70 and IBM 1401; Easytax/360, a tax calculation package for centralized payroll data processing operations; JCL/360, a control statement generator for the IBM 360 operating system; Compak 360, an on-line communication control system which provides the terminal user a direct link, via CRT or hardcopy terminals, with a central computer to a data base.

Other New Companies

* K/Tronic, Inc. has been formed to make computer tape cassettes for a fast growing segment of the computer industry.

K/Tronic is already delivering "certified cassettes" to seven computer peripheral firms. Digital cassette certification is a trade term for an electronic inspection process to insure that both tape and cassette will enhance a computer system's performance and reliability.

Acquisitions

Digicon, Inc. of Houston will merge with Texas Scientific Corp., also of Houston. Digicon is engaged in the collection of seismic data by both marine and land surveys, and in the processing of this data by computer. Texas Scientific was organized to develop a line of computer terminals, equipment which permits remote and instantaneous access to a computer.

National Information Systems Corp., a subsidiary of National Liberty Corp., Valley Forge, Pa., a company that specializes in facilities management, has acquired a majority interest in Mastech Computer Systems, Inc. of Chicago, a consulting, computer systems design, and engineering services company.

John S. McGregor of Milwaukee, Wis., has acquired controlling interest in Donovan Equipment Co., Inc. and its subsidiary, Donovan Equipment-Chicago, Inc. Donovan Equipment markets free-

cess, computer-type flooring used in computer centers, laboratories, and modern office facilities. It also sells environmental control systems and provides specialty office remodeling. In addition, the company owns Satellite Centers, which nationally designs and distributes pre-engineered environmental buildings for use as computer centers and laboratories. McGregor will become president and treasurer of the firm.

Brandon Applied Systems, Inc. New York, N.Y., has acquired College Campus Promotions, Inc. Brandon Applied Systems is an international management and technical consulting firm specializing in data processing and information sciences, EDP education and training, programming and proprietary software, and publishing and printing. College Campus Promotions is a marketing, sales promotion, and publishing organization.



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Trade Shorts

Hungary plans to put about 400 new computer centers into operation during the next five years. It currently has 80 computer installations.

A state planning official said Hungarian-produced equipment will be used in the smaller centers and foreign-made computers for the larger ones.

Data 100 Corp. of Minneapolis has agreed with Honeywell's EDP division for Honeywell to provide maintenance service on Data 100's computer terminals, the two firms announced.

GE is consolidating its terminal-products section in Oklahoma City, said Frank E. Lerner, general manager of GE information-devices dept.

This will result in the closing of the Philadelphia plant that manufactures various electro-mechanical products such as paper tape readers used for programming automatic equipment. About twelve professional employees will be transferred from Philadelphia to Oklahoma City and 100 others, mostly clerks, machinists, and assemblers, will be laid off until GE can place them in its own work force in the Phila. area or assist them in finding employment elsewhere. Manufacturing efficiency dictated the move, a GE spokesman said.

A marketing tool, "Profile of Data Processing in the Federal Government-1970" is being published by Aids division, 600-page book contains a complete study-size and scope of the 2,433 Government ADP activity locations.

The data included covers all phases of the operation, maintenance, and budget of each of the locations.

Megadata Computer and Communications Corp., Dear Park, N.Y., has begun national distribution of the S/R 1000 portable computer. The unit is a complete system consisting of a teletype writer style alphanumeric keyboard, and an acoustic telephone handset coupled with a television format video signal output. It can use any standard television set for read-out display.

Rolm Corp., Cupertino, Calif., has named Data Engineering Corp. as sales representatives in the Southern states, said Gene Richardson, Rolm marketing V.P. Data Engineering, Dallas, will handle sales of Rolm's "rugged" general purpose severe environment minicomputer.

InterAccess Corp. is reducing net user time-sharing prices retroactive to Jan. 1, 1970 which lowers costs from 30¢-50¢, according to Tod Morcott, president. Reductions are attributed to continuing systems design improvements which result in "substantial increases in the system's throughput," notes Morcott.

Jack Bain Co., Inc. New York City, has been appointed exclusive Northeastern ad rep for monthly magazine of the Data Processing Management Association, formerly the Journal of

Data Management.

Mite Corp. has completed its first commercial deliveries of two recently developed products, its new alpha-numeric data terminal Model 123 Page Printer and its desktop Stromberg/250 Executive Time Stamp.

Elgin Electronics Inc. has appointed Bamco Inc., Greenwood, S.C., as sales rep for telephone products in the Carolinas. Bamco will be responsible for the sale of Elgin's test and measurement equipment, alarm and recorder couples.

Interface Industries Inc., Hauppauge, N.Y., a newly-formed computer design company, has retained Decision Services International, Inc. to handle all marketing efforts. Lloyd St. Jean, president of Interface, announced that the Boston-based marketing sales service firm will serve as consultant and sales agent for Interface's custom-designed computer systems and systems components.

Computer Sharing of Canada is changing its name to Com-Share (Canada) Ltd. and the relocation to its Toronto district office to 41 Voyager Court North, Rexdale 605 Ontario.

Methodist Hospital of Indiana Inc., Indianapolis, one of the largest general hospitals in the country, is utilizing Lockheed's information system for hospitals.

Specialists will computerize the business office functions of the 1,100-bed hospital. In May, patients will be billed by computer—the first step in a multi-phased program developed by Lockheed Information Systems of Sunnyvale, Calif.

"Information flow is essential to a hospital," said Jack L. Hahn, hospital president. "The new system not only will handle routine business office work, but will provide more timely, complete and accurate management information."

Interdata Inc., Oceanport, N.J., has received \$255,000 in orders from Model Systems Corp. of Japan. Orders are for Interdata's Model 3 and 4 systems with field expansion for use in Jacob's Minite 1 and 11 small time-sharing system.

Lutter and Helstrom Co., nationwide data systems company with headquarters in Chicago, has named Wyde and Company to handle its advertising, marketing and public relations, according to Frederick H. Lutter, president of the four-year-old firm.

Computer Notes Car Wear

LONDON—The first computerized investigation into British insurance use and weaknesses in Britain is being undertaken by engineers of the Automobile Association.

Each year the organization's engineers inspect and compile reports on about 40,000 cars. These reports, from which about 100 critical items will be selected, will be programmed annually into the A.A. computer and the pattern of faults will be analyzed.

Crane Branch Studies Water Pollution

NEW YORK—Crane Co. has organized a new division, Environmental Systems, to serve the needs of industry, government, and the public in water, air and thermal pollution, and water treatment problems.

Headquartered in King of Prussia, Pa., the Environmental Systems Division will draw on Crane's experience in the fields of water and waste treatment, municipal water supply, heat transfer, and the handling of dissolved gases.

The new division will combine this knowledge with Crane's experience in systems engineering, fluid pumping and control, and methods for expanded water and waste discipline.

"The fields of water, air, and thermal pollution are so closely related in a modern industrial plant," said Crane's president D.C. Fabiani, "that it is only logical to co-ordinate the efforts to control them. We are expanding our activities to cover air pollution and noise abatement so that we will be able to offer as complete a service as possible."

Crane has been supplying engineered water treating systems, including all necessary valves, pumps and controls, since 1925. The new division will operate as part of Crane's Engineered Products Division, which is headquartered in New York.

Other Subsidiaries

★ Market Development Corp., St. Louis-based direct marketing firm, has formed Computerware Data Services, a new data processing division.

A few of the services offered by CDS include input preparation and conversion, whereby records, invoices, inventories, mailing lists and so on, are transferred to magnetic tape via electronic optical scanning; subscription fulfillment services designed to fulfill all circulation requirements such as billing, mailing, auditing and renewal promotions; data processing consulting; software development to help solve very specialized software problems; installation management; and a wide variety of commercial data processing services including key-punching, key-verifying and general accounting services.

MDC has been involved with computerized mailing lists and computer letters for the past 10 years.

★ Interactive Data Corp. and Innovative Systems Development, Inc. have reached an agreement in principle whereby Innovative will become a computer systems and consulting company within the Interactive corporate framework.

The new subsidiary, to be renamed Innovative Software,

Inc., will be concerned primarily with the design, development, implementation, and operation of custom-tailored, large-scale

utilities involves the implementation of a large-scale, on-line portfolio management system for a major financial institution.

★ Data General Corp. has formed a subsidiary computer company in Canada.

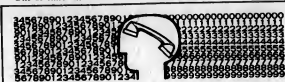
The new company, to be known as Datagen of Canada Ltd., will operate as a wholly owned subsidiary of Data General.

Datagen of Canada will make and sell Novas and Supernova computers and related peripherals in the Canadian market. The 22 month old computer company has said recently that it plans a major expansion of its headquarters and announced the establishment of a new facility in Hudson, Mass.

New Subsidiaries

data systems as they apply to financial, accounting, management, and manufacturing operations.

Interactive Data, a computer time-sharing firm geared essentially to serve the financial community, recently announced that a second IBM 360/67 computer in its hardware system had gone on stream and that four additional 360s were on order. One of innovative's current ac-



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CDC Finishes Computer Education Center

MINNEAPOLIS Minn. — Control Data Corp. has completed its 45,000-sq-ft computer education center at 1901 Washington Ave. here.

Designed specifically as an education center, the two major computer laboratories housing CDC 6400 and CDC 3300 systems are installed on the first floor, along with five peripheral equipment laboratories for use in student training.

The institute will provide entry-level training, advanced customer training, special contract training, and internal training for Control Data employees.

Courses, offered to the public in computer programming, and computer technology, will enable graduates to qualify for positions in the electronic data processing industry. Loans to cover tuition costs of these courses may be arranged through Control Data's subsidiary, Commercial Credit Co.

The new center will also be a focal point for customer education and training courses which

Control Data sells to its customers.

Pica Data Changes Name, Moves to New Location *

PRINCETON JUNCTION, N.J. — Pica Data Systems, Inc., formerly known as Printing Industry Computer Associates, has changed its name and expanded to a new larger computer center at Princeton Road (P.O. Box 38). This latest expansion represents Pica's second complete computer center for the graphic arts industry.

The new center encompasses over 6,000 sq ft of computer equipment, including an IBM 360/40 (256K) processor and an entirely new experimental CRT output device which will be announced shortly.

Founded in 1968, Pica has gained an international reputation for two particular activities: Ultra-X, described as the world's first software composition system to offer full-page make-up on the IBM 360 and high-speed

CRT output devices; and Printing Management Information System (PMIS), which offers printers of all sizes the advantages of computerized business systems.

Other Expansions

Optimim Systems Inc., a computer services and software company headquartered in Palo Alto, Calif., has opened offices at 256 Montgomery Street, San Francisco, and at 3435 Wilshire Blvd., Los Angeles. Both offices contain high- and low-speed terminals with direct access to OSI's computer center and also function as customer service and sales offices.

Thayer Electronics, Inc., of San Antonio, Texas, has established four separate divisions and changed its name to Thayer Corp. Immediate plans call for the corporation to embark on a major market expansion program designed to move the company into nationwide domestic and foreign markets.



COMPUTERWORLD

expansions

New CSC Facility Houses Eastern Systems Division

WASHINGTON, D.C. — Computer Science Corp. has opened its new building at 8728 Coleville Road in Silver Spring, Md. The facility houses personnel of the eastern region of CSC's Systems Division. It also serves as the Washington headquarters of the company's Information Network Division, which provides a broad range of time-sharing services known as Infonet to business and governmental organizations on the East Coast.

CSC's new Silver Spring facility is one of five maintained by the company in metropolitan Washington, where CSC occupies 250,000 sq ft of office space. Other CSC installations are located in Falls Church, Alex-

andria, and Arlington, Va., and in downtown Washington.

The Silver Spring operations center serves a number of state and federal organizations, as well as private industry.

Among the company's current projects is the development of an automated system for all of the major library functions of the National Library of Medicine.

CSC also provides extensive services in analysis and computer programming to NASA's Goddard Space Flight Center and to the National Military Command System Support Center of the Defense Communications Agency.



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SJCC Show Issue — Advertising forms close April 24
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April 1	March 20	March 13
April 8	March 27	March 30
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April 22	April 10	April 3
SJCC Preview	April 29	April 10
SJCC Show	May 6	April 24
		April 17

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Executive Corner

G. Mitchell Greyhound Branch V.P.

CHICAGO — Gilbert J. Mitchell has been elected divisional vice-president for data services of Greyhound Computer Corp., 73% owned by a subsidiary of Chicago-headquartered Greyhound Corporation.

Mitchell will be responsible for new developments in GCC's expanding data service operations. Mitchell joined the company in 1968 as general manager of

GCC's San Francisco data center. He previously held management positions with Continental Can Co., Univac, RCA and Control Data Corp. A native of Montreal, Canada, he received a bachelor of commerce degree from Sir George Williams University. He did postgraduate studies at McGill University in Montreal and Queens University in Kingston.

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Informatics V.P. Heads Trade Mission

SHERMAN OAKS, Calif. — Werner L. Frank, a founder and senior vice-president of Informatics Inc., a software firm with major facilities in Bethesda, Md., has been selected by the U.S. Department of Commerce to head a special U.S. Trade Mission on behalf of the electronic data processing industry to Southeast Asia in late April.

The mission, whose objective is to promote American EDP technology and trade outside the U.S., will visit Taipei, Jakarta, and Singapore between April 29th and May 5th. It is the first in a series of EDP trade mission seminars to Southeast Asia, and will be followed in late 1970 and spring 1971 by similar EDP trade mission seminars.

At each of the three Asian cities on the itinerary, a two-day seminar will be presented by members of the mission of EDP products and services available to the Asian business community. Topics of the sessions will include: EDP trends in the next decade; how to buy software; what is available in software packages; computer communications systems; computer hardware advances; the impact of terminals.

The mission Frank heads has space for eight manufacturers of data processing equipment. Each company representative will be given an opportunity to present his firm's EDP services during the seminar.

Frank was selected to head the mission because of his 20-year business background in the EDP industry.

As a senior vice-president of Informatics, Frank directs the eastern operations of the company from his Bethesda, Md., offices.

Weller Named By CDC to European Post

BRUSSELS, Belgium — G.S. Weller has been promoted to the position of vice-president, European systems operations,

with offices located here.

The establishment of this function in Europe was made to provide increased responsiveness and technical support to the company's European subsidiaries.

In his new position, Weller will be responsible for providing overall supervision of systems development and technical support of both Control Data's large- and medium-scale computer systems in Europe, including the virtual area of software development and maintenance, systems and product management, and manufacturing.

Weller has held several key management positions at Control Data since joining the company in 1966. Prior to his promotion, he served as general manager of Control Data's 3000/1700 Systems Division, responsible for the delivery of small- and medium-scale computer systems to specific industry markets, as well as for related development programs.

Before coming to Control Data, Weller was with the Martin-Marietta Corp., where he was corporate director of that firm's data processing operations at Friendship, Md. He also previously served with Convair Ft. Worth, Texas.

Other Moves

■ Joseph P. Ganley has been appointed vice-president, marketing, for the Graphic Systems Division of University Computing Co., Van Nuys, Calif.

■ Valmond Poulin has been elected vice-president of Associates Marketing and Computing Services Co., Inc., South Bend, Ind.

■ Owen R. Sondergaard has joined Group Operations, Inc. of Washington, D.C. as vice-president. He will be responsible for all systems analysis and programming projects in the Washington, D.C. area.

■ Data Personnel Consultants Division of Systems General Corp. of Los Angeles has named Don L. Rees president.

■ Data & Information Products, Inc., Princeton, N.J., wholly owned marketing subsidiary of Applied Data Research, Inc., has promoted P.E. Borkovitz and Ronald D. Davis to vice-presidents.

Borkovitz will continue as eastern regional sales manager in charge of sales offices in New York, New England, and Pennsylvania. Davis is western regional manager and directs sales in the Rocky Mountain and West Coast states.

■ The Henderson Corp., Washington, D.C., has appointed Herbert J. Miller vice-president and elected him to the board of directors. The company also appointed Denis E. Ables, secretary of the corporation, to the position of vice-president for proprietary applications.

■ Len Turner has been appointed executive vice-president of Ski-Share of Ontario Ltd.

■ Timeshare Network Corp. of Chicago has made the following appointments: Lawrence D. Pucell, president of the company, has become chairman of the

board; James L. Unger has become president of the company; Tony Yates is Timeshare Network's operating vice-president and eastern regional director; Robert Page joins the company as vice-president, southwest region.

■ IBM Canada Ltd. has announced the following senior management appointments: J.A. Avery has been named vice-president, data processing staff. He will be responsible for data processing marketing planning and administrative services across Canada. B.G. Cote has been named vice-president, data processing marketing, eastern region. He will be responsible for all data processing marketing activities in the Province of Quebec. L. Lemaire has been named vice-president, data processing marketing. He will be responsible for all data processing marketing activities in Ottawa, Kingston, and the Maritime Provinces.

■ Edward G. Haggerty has been appointed executive vice-president of Computer Investment & Consulting Corp., Haddonfield, N.J.

■ Donald H. Cox has been elected president and treasurer of Applied Geodata Systems, Inc. of Cambridge, Mass.

■ Detario Business Machines Co., El Segundo, Calif., has named Ronald J. Kilias vice-president, manufacturing. He will be responsible for all areas of manufacturing, engineering, production and quality control.

■ Lawrence M. Green has been elected vice-president in charge of marketing for Computer Resources, Inc., Cleveland.

■ Timothy P. Fitzgerald has been named vice-president of development engineering for HF Images Systems, Inc., Culver City, Calif.

■ First-Union Automation Services, Inc., St. Louis, Mo., has elected Paul J. Moroz vice-president.

■ Software Assistance Corp. of Ann Arbor, Mich., has appointed James T. Hopper president and chief executive officer. He was also elected to the board of directors along with Ronald Woods and Donald P. Wenzel.

■ John J. Leonard Jr. has been named vice-president of Creative Logic Corp. of Paramus, N.J. In his new capacity he will direct the company's corporate development and marketing programs.

■ American Data Services, Inc., Portland, Ore., has promoted John A. Gorman to the position of vice-president and director of the Software Division.

■ Fenimore Fisher has been promoted to corporate vice-president of IMC Magnetics Corp., Westbury, N.Y. He will continue as assistant to the president, with responsibility for IMC's Marketing Division, new product development department, and licensing activities.

■ Robert E. Roth has been appointed vice-president of Data Processing Applications, Inc. of Santa Monica, Calif.

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General Analytica Corp., Bethesda, Md., has been recognized by the U.S. Bureau of the Census as a 1970 Summary Tape Processing Center, in line with the bureau's effort to improve access to the data which will be processed by the upcoming national census.

The firm will provide, upon request, a wide range of census-use consulting and data processing services, supporting planning and evaluation in urban studies, social research, and marketing.

Particular services will include application of editing, file maintenance, and data manipulation programs to census summary data; construction of specialized data bases for processing and aggregation of summary data; and designing and performing multivariate statistical analysis of summary data.

International Communications Corp., Miami, Fla., a subsidiary of Milgo Electronic Corp., has signed a world-wide marketing agreement with Timeplex Inc., Westwood, N.J. Under the agreement, ICC will market Timeplex data multiplexing equipment through its domestic and international sales organization.

In announcing the agreement, ICC President Edward Bleckner Jr. stated, "The addition of multiplexing equipment to our line allows us to meet the growing requirements for broader use of

high-speed computer communications. The Timeplex equipment complements our line of data modems, and significantly expands our capabilities." The multiplexing equipment combines data from up to 70 individual terminals for high-speed transmission over a single voice-

Honeywell's EDP Division has agreed to sell more than \$1 million worth of line printers and card reader/punches to Data Computer Systems of Santa Ana, Calif.

The agreement calls for delivery of new MLP-12 300 line/min printers, MLP-4 950 line/min printers, and MRP-01 card reader/punches over the next several months, according to Thomas C. Munnell, director of OEM sales for Honeywell EDP, and Richard Musson, president of Data Computer Systems.

Musson said the Honeywell equipment will be used with DCS's CP-4 system which, he said, is a remote batch-processing terminal that is program compatible with the IBM/360 system.

The agreement was negotiated and signed by Honeywell EDP's recently formed OEM sales organization.

Kai Tak Airport, Hong Kong, will have sophisticated computerized passenger-handling

system, specially designed, for the first time, to meet the different airlines' requirements.

The computer will also be the first installed by a non-airline commercial firm without capital investments from the airlines using the facility.

The tender has been awarded to the Hong Kong firm, Avicom Ltd., announced Kenneth McNulty, national sales manager for Computer Systems Division of Phillips Broadcast Equipment Corp., Mahwah, N.J.

R.G. Costello, an Avicom director, said the system would cost about \$1.5 million and would be leased to airlines for a fee, based on the number of passengers for each flight.

The proposed system, the Airford, would give the airlines continuous control of check-in and load status of any flight, automatic preparation of load and passenger documents, and con-

tact with freight and mail staff
on other areas of Kai Tak.

Iomec Inc., Santa Clara, Calif., is establishing a central marketing region covering a 22-state area from Ohio to east of the Rockies, according to Avery Blake, marketing vice-president. Headquartered in Dayton, Ohio, the region will be managed by John Leitschuh, who will coordinate total sales and product support activities.

Wilson Jones Co. and the Philadelphia Stationers, Philadelphia, jointly sponsored one of the largest presentations of Wilson Jones data processing accessories in the loose leaf manufacturer's product presentation program last month.

The newest equipment for solving what Wilson Jones calls "printout problems" was demonstrated to more than 200

executives representing the management of about 85 companies in the Philadelphia metropolitan area.

The event was directed by John Clark, WJ sales promotion manager.

Micro Systems Inc. has developed a piece of test equipment in which the company's Micro 800 minicomputer literally "tests itself."

Every digital board contained in the computer, including control and data, read only storage, and all option interface boards are put through a comprehensive test program generated by the Micro 800 encased within the Automatic Board Test System.

The Micro 800 Computer Controlled Automatic Board Tester is a semi-static system which can test any digital circuit board for all logical functions as well as shorts or open circuits.

New Registrations

COMPUTATRICS INTERNATIONAL MANAGEMENT CORP., 220 Park Ave., S., New York, N.Y. 10003, a company that proposes to provide management information and project management systems consulting services and operate a network of franchised and company-owned computerized management centers, provide programs for the management of investment and venture capital, mutual funds and develop and market information technologies, offers

stock. Proceeds, at \$5 per share maximum, intended for marketing and enhancing the IRS; for expansion of the company's professional and technical staff; for developing additional proprietary computer programs; for staffing and equipping regional sales and training offices for marketing the IRS; for working capital and corporate expenses. The underwriter is T.C. Hoare & Co., Inc., 2 W. 43rd St., New York, N.Y. 10036.

ARTONIC INFORMATION
SYSTEMS, INC., 155 E. 44th St.,
New York, N.Y. 10017, a company man-
aged in providing its clients with man-
agement consulting services in the
field of computerized data processing,
is offering its materials formula-
tion of management procedures, filed
to register 105,000 shares of com-
mon stock. Proceeds, at \$2.75 per
share maximum, intended for expan-
sion of the company's programming
department, for the purchase of
computer terminal equipment; for
the development of a combination
consulting and programming service;
for expansion of its consulting ser-
vices; for payroll, personnel, and
other expenses in connection with its
seminar activities for working capital
and other corporate purposes. The
underwriter is T.E. Lehman & Co.,
Inc., 40 Exchange Place, New York, N.Y.

PLANNING RESEARCH CORP., 1100 Glendon Ave., Los Angeles, Calif. 90023, a professional service company engaged in furnishing a wide range of services to government and industry in the fields of systems analysis, systems engineering, and economic analysis, design and implementation of computer software systems, management consulting and planning, engineering and construction management, filed to register 4,429,680 shares of common stock. Proceeds will be \$47.75 per share maximum. No underwriter is involved.

OPTICOM DATA MANAGEMENT CORP., 25 Park South, New York, N.Y. 10023, a computerized information management services, (including reproduction of textual and graphic source documents in substantially reduced size), conversion of data from customers' computer generated magnetic tapes directly into readable data on microfilm, filed to register its common stock with the SEC. Proceeds, at \$5 per share, intended for repayment of outstanding loans, proceeds of which were used for working capital; for purchase of equipment, including some that is under lease; for leasehold improvements and furnishings; for the purchase of real estate; and for public relations; for working capital and general corporate purposes. The underwriter is O.H. Baker & Co., Inc., 66 Beaver St., New York, N.Y. 10004.

COMPUTER BUSINESS SUPPLIES, INC., 3515 V St., N.E., Washington, O.C. 20018, a company en-

gaged in the marketing of business forms, principally those used in the operation of EDP equipment, filed to register 325,000 shares of common stock and 325,000 common stock purchase warrants, to be offered for public sale in units of one share and one warrant. Proceeds, at \$1 per unit, intended for establishing a warehouse in Philadelphia; for the repayment of a bank loan, purchase of business forms, payment of salaries, startup costs for a proposed sales office, and for working capital. The underwriter is Max Zerkin & Associates, Inc., Bethesda, Md.

DATA DOCUMENTS, INC. 05. 3
70th St., Omaha, Neb. 68132, is
to register 11,700 bonds of the
County of Douglas, Nebraska, Series 1970. The
bonds are being issued to provide
for the purchase of land, for water
and construction of land, plant
and buildings, and equipment com-
prising a manufacturing and
processing plant, the structure of
tabulating cards and continuous forms
for computer use. The project will be
financed by the sale of the bonds
to a lease and agreement between the
county and the company. The rental
payable under the lease will be
used to pay the principal and interest
of the bonds, and any, and interest
on the bonds, and such rental, together
with the proceeds of the sale of the
of the bond sale will be sufficient to
pay such principal, premium, and
interest. The bonds are limited oblig-
ations of the county, and will be paid
out of the revenues derived from the
project and will not constitute in-
debtedness of the county. The under-
writing is being done by the County
100 Continental Bldg., Omaha, Neb.

COMPUSCAN, INC., 125 Fort Lee Road, Leonia, N.J. 07609, a computerized scanning and data processing firm, features, and markets proprietary optical scanning equipment as well as a variety of services. The company's equipment is used by a number of government agencies, and the company also provides reader optical scanning services to others, filed to register 200,000 shares of common stock. The company is currently seeking investors for purchase of additional equipment; continued development of software programs used in the company's equipment; and the company's development and maintenance of its marketing staff and for sales and service of its equipment for financial capital and general corporate purposes. The underwriter is **Flaks, Zetlow & Co., Inc.**, 40 Exchange Place,

EDUCATIONAL COORDINATES, INC., 475 Hamilton Ave., Palo Alto, Calif. 94301, a company engaged in the construction of class schedules for schools using computers and modern scheduling techniques, filed to register 200,000 shares of common stock. Proceeds, at \$15 per share maximum, intended for leasehold improvements and capital equipment, and for additional working capital for business expansion purposes. Name of underwriter not yet available.

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IBM Delays Deadline**Levin-Townsend Falters on \$11.2 Million Debt to IBM**

NEW YORK—Levin-Townsend Computer Corp. owes IBM \$11.2 million and doesn't have the money to pay it.

This revelation by the company is another in a series that has followed the firing of Howard S. Levin, former president of

the company, and which reveals the depth of the firm's financial woes.

A few weeks ago Levin-Townsend's third quarter report showed sharply reduced earnings topped by massive write-offs that gave the company its first

quarterly loss in history, adding up to \$15.9 million.

\$47.3 Million for Equipment

Levin-Townsend had equipment purchase obligations to IBM of \$47.3 million, payable through 1972, the company re-

vealed last July. Currently it is behind on payments of \$11.2 million, and is seeking new financing of \$20 million.

The company said that the \$20 million private financing would be used to pay off the IBM debt, certain other debts in good standing, and to increase cash flow.

Cash flow has been affected by the use of funds for non-computer activities, particularly the Bonanza Hotel in Las Vegas and a food and gift shop franchise subsidiary. Both have been curtailed since January.

The company announcement revealed that there have been negotiations with IBM since the beginning of the year, and that IBM indicated it will "defer action with respect to the corporation's indebtedness to IBM until March 17, 1970; but IBM has indicated further that it would normally consider an extension of this period if the corporation is engaged in good-faith negotiations to obtain financing."

IBM confirmed that the statement was representative of its plans. "In view of the necessity of further financing..." Levin-Townsend said it "is presently discussing with financial institutions financing in the above or lesser amounts which may require the issuance of debt securities either convertible into com-

mon stock or nonconvertible, or equity securities, or a combination of debt and equity securities."

The Levin-Townsend troubles first surfaced in January when the directors by a four-to-two vote decided to replace Levin as president with his co-founder, James E. Townsend. At that time the Levin-Townsend board said the "realignment" was necessary to get the company out of business into which Levin had diversified it.

Levin, vowing to regain control of the company, filed suit against the directors charging that they had conspired to dismiss him illegally. He said that he had been prevented from returning to his office and from seeing company records and his own mail.

Responding to the suit, Townsend said that Levin had run the company without following the advice of his directors and fellow officers, and that he had squandered company funds in the face of an ever-worsening cash-flow problem. At the time of Levin's dismissal the company announced that it expected a poor third quarter showing.

Hearing of the announcement of the problems with IBM, Levin said: "This is an additional reason why it is important for me to regain control of Levin-Townsend."

Sale of Laboratory to EDP Technology Prohibited by New York State Court

BUFFALO, N.Y. — The New York courts have forbidden the sale of non-profit Cornell Aeronautical Labs to EDP Technology, Inc., of Washington D.C. EDP Technology had sought the facility engaged in Defense Department research, to expand its R&D capability. EDP is involved in both service, bureau

work and health facilities.

In rejecting EDP's \$25 million bid, New York State Supreme Court Justice Harold P. Kelly said that the donation of the lab to Cornell University by the Curtis-Wright Corp. in 1945 was "a charitable gift restricted to the purpose of conducting research for the public interest or

benefit and its purposes are capable of continued effectuation as the laboratory now exists."

In New York a Supreme Court is a court of original jurisdiction and a long course of appeals is possible.

EDP Chairman Sanford D. Greenberg said: "We believe that the evidence presented at the trial clearly demonstrated that the laboratory was an unrequited gift to the university and that the university has the right to sell the laboratory."

The laboratory was a recent target of student and faculty protest because of its weapons research. Cornell's trustees decided to sell the laboratory after the protests.

The sale was announced over a year ago. At that time a temporary injunction was issued against the consummation of the sale, and Kelly's ruling has extended this injunction.

The laboratory has more than 1,500 workers, and its contracts amount to about \$32 million per year.

EDP is engaged primarily in developing new systems and techniques for applying advanced technology to problems in education, business, health, and community planning, both in the U.S. and abroad.

CAL's research programs center on flight dynamics, systems, physics, computer sciences, transportation and vehicle research, and aerodynamics.

Automatic Data Processing Acquires Data-Way Corp.

CLIFTON, N.J.—Automatic Data Processing, Inc. (ADP), a leading national computer services company, has reached an agreement in principle to acquire Data-Way Corp., a privately owned, seven-year-old Westbury, L.I. data-processing firm.

Frank R. Lautenberg, president of ADP, said the agreement calls

for Data-Way to be acquired for an undisclosed amount of stock and to be accounted for on a pooling-of-interests basis. "Current management will remain in charge of operations at the subsidiary, which will be called Automatic Data Processing of Long Island, Inc."

Operations will be expanded to serve the Long Island market with ADP's payroll, accounts receivable and other commercial data processing services.

Lautenberg also said the company has completed its previously announced acquisition of Electronic Data Service, Inc., a Chicago-based computer service firm, and has launched a major marketing program in the Chicago area.

When completed, the Data-Way acquisition will be the fifth made by ADP in the current fiscal year and the 15th in less than three years.

ARD President Refutes Rumors Of Stock Split

BOSTON—Despite rumors to the contrary, American Research and Development Corp. (ARD), one of the nation's largest venture capital companies, isn't planning a stock split or a distribution to its shareholders of its 48% of Digital Equipment Corp. (DEC).

Georges F. Doriot, president of the company, said no action is planned to distribute any of ARD's affiliates' stock at a recent shareholder's meeting.

ARD owns 4,605,000 shares of DEC, equivalent to three-quarters of a share for each of ARD's 6,140,000 outstanding shares.

ARD invested in DEC when the company was founded, and bought 48% of the minimaker for \$61,400. It now values the stock at \$463,378,125. ARD's net assets are \$555,233,448.

The common stock of ARD was split four-for-one last August.

Other ARD investments include Adage, Inc.; Computer Usage Co.; Memory Technology, Inc.; Optical Scanning Corp.; Tau-Tron, Inc.; URS Systems Corp.; and several others not connected with the computer industry.

Jones Quits as Applied Data Head in Board Dispute

By Harvey Elman
CWI staff writer

PRINCETON, N.J. — Richard C. Jones, an outspoken executive in the computer-services industry, and an initiator of one of the civil antitrust suits pending against IBM Corp., has resigned as president and director of Applied Data Research Inc. (ADR) in a disagreement with directors.

Chairman Henry B. Wickenden said in a statement that the board and Jones "had reached points of differences in management and operational philosophy in such areas as acquisition policy, corporate structure, and management controls." The parties agreed, he continued, that "a new management was in order."

In an interview with CWJ, Jones stated his belief that a company "should be democratic, not autocratic. A greater delegation of responsibility should be given to a broader set of individuals," he said.

Jones, president of ADR since 1963, feels that the board's policy of playing an active role in company affairs was unjustified. "Acquisition policy is my job, not the board's responsibility," he said.

ADR's net income last year declined to \$104,139, or 11 cents a share, from \$352,849, or 39 cents a share in 1968. The company previously attributed the decline to increased expenses for developing and marketing products, the 1969 acquisition

products, the 1969 acquisition of an unprofitable company named Programatics Inc. (endorsed by Jones), and a fire in the headquarters office in November.

John R. Bennett, formerly marketing vice-president, was named to succeed Jones as head of the computer programming and services company. Bennett indicated the board was quite distressed with the 1969 results.

Last April, ADR filed the fourth in a series of antitrust suits brought against IBM by other computer concerns and the Justice Department. Programatics filed a fifth suit in May, before it was acquired by ADR. The suits, which await trial, accused IBM of monopolistic and

anti-competitive practices.

Jones is also a founder and the president of Programatics Inc., an Independent Software Companies and a frequent public commentator on developments and problems in the computer-service business. He will now have to resign that post, because it must be held by a representative of a major company.

Two major topics on which Jones has been outspoken in the past are the effectiveness of unbundling applications in the computer-services industry and the need for patent protection.

Jones, described by Wickenden as a "dynamic individual," said that he hadn't determined which career he would next seek.

Fourth Quarter at Tally Brings Return to Profits

KENT, Washington—Tally Corp., peripheral manufacturer, has reported record sales of \$3,711,000, for the fourth quarter ended Dec. 31, 1969. This represents a 16% improvement over net sales in the same period of the prior year of \$3,190,000. Operations at the end of the year were in the black despite an operating loss in the fourth quarter of \$49,000.

The company's audited financial results for 1969 resulted in net sales of \$10,977,000 with a net loss, prior to inclusion of an extraordinary item for plant relocations, of \$1,638,000, or \$1,823,000 after provision for the extraordinary item. Comparable results for the prior year were sales of \$10,920,000 and a loss of \$2,572,000.

Why the Shakeout?

T/S Jolted by Overblown Projections, Education Lag

By Drake Lundell

CW New York Bureau

The time-sharing industry is perhaps the only computer industry segment that suffered a serious shakeout period during 1969. This shakeout occurred in spite of a 50% rise in annual sales volumes during the year.

The shakeout, affecting many of the largest names in the business, like ITT Data Services, GE Time-Sharing, and IBM Call/360 is thought to have resulted from overconfidence in the industry's future. Revenues for last year were overprojected at the end of 1968.

Many established firms projected 1969 revenue growth at double the rate of 1968 sales. These firms staffed to meet this tremendous jump in business. When revenue increased, however, only one-fourth of the projections, severe cuts in staff and

equipment had to be made.

These cuts made it appear that these companies were in trouble, when they were really growing at a rate that would be called "leaps and bounds" in any other industry—50%.

One of the hardest-hit firms was General Electric. GE's Information Services Division has long been considered to be the largest single company in the field. At the end of 1969, GE accounted for about one-third of the \$150 million industry revenues.

GE was forced to cut about 20% of its personnel—400 to 600 people. Even after these cuts, the division's employment level was up about 30% Jan. 1, 1970 over Jan. 1, 1969.

Sources at GE indicated that the reason for the cuts was "poor projections the rosy views of the time-sharing market

predicted last January just haven't materialized in the dollar and cents market."

GE also demonstrates another trend affecting the time-sharing industry—consolidation. Previously, the firm had opened 17 computer centers around the country, but when the pinch came at the end of last year, GE consolidated into five offices to save money.

In a CW interview, Paul W. Sage, division general manager, said that the industry failed to meet its projections because most firms underestimated the amount of education and support needed to get new customers and new areas of business active on remote computing systems.

Until last year, the principal market for time-sharing was engineering and research, he maintains. In late 1968, many of the

large firms realized that the largest market for their services was in the business segment of the data processing industry.

Projections for the cost of sales, training, and education were based on past experience with the engineering and scientific market. It turned out that the past types of users were far more sophisticated in their approach to computers, and were ready students of the time-sharing philosophy.

Computer-based simulations of the market growth could not project the lag time needed to get these new users trained to use the system, Sage said.

The net effect of this lag between signing up a new customer and the customer revenue-producing use of the system caused a sharp drop in the growth in average revenue produced per month by each customer.

Some sources at GE indicated that average billing per month for each customer dropped from about \$2,000 in 1968 to under \$1,000 in 1969. Even though the number of customers actually nearly doubled, revenues only rose about 30%.

Future Still Bright

Overall, the future continues to look bright, but not as bright as at the same time last year.

The projected \$1.5 to \$2 billion market for time-sharing has not disappeared. It has only been postponed for about a year, or 18 months. The original projection had indicated the time at about 1975.

For a company that can survive the next two years is on the "gray train" according to one of Sage's competitors.

Earnings Reports

NATIONAL CASH REGISTER

Year Ended Dec. 31

1969 1968

5th Qtr Earnings \$4.11 \$3.87

Revenue 1,254,841,000 1,127,150,000

Earnings 44,115,000 37,500,000

3 Mo Shr 1.55 1.28

Revenue 378,088,000 329,163,000

Earnings 15,738,000 13,658,000

A-Assuming full dilution, as reported by company. The above figures include results of the recently acquired combined Paper Mills Inc., on a pooling-of-interests basis.

ADDESSOGRAPH MULTIGRAPH

Three Months Ended Dec. 31

1970 1969

5th Qtr Earnings \$5.11 \$5.52

Revenue 102,488,000 97,762,000

Earnings 4,078,000 4,998,000

3 Mo Shr .93 1.03

Revenue 198,817,000 190,377,000

Earnings 7,484,000 8,247,000

A-Assumes acquisitions on a pooling-of-interest basis. B-Assumes full dilution and conversion of preferred stock.

UNIVERSITY COMPUTING CO.

Year Ended Dec. 31

1969 1968

5th Qtr Earnings \$2.50 \$1.57

Revenue 16,826,000 9,988,000

Earnings 1,345,000 817,000

A-Assumes acquisitions on a pooling-of-interest basis. B-Assumes full dilution and conversion of preferred stock.

3 Mo Shr .93 1.03

Revenue 198,817,000 190,377,000

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Earnings 7,484,000 8,247,000

MIGLOS ELECTRONIC CORP.

Three Months Ended Dec. 31

1970 1969

5th Qtr Earnings \$8.55 \$5.32

Revenue 2,985,000 1,378,000

Earnings 645,000 230,000

3 Mo Shr 2.85 1.68

Revenue 758,508 shares Dec. 31, 1969, and 715,598 shares Dec. 31, 1968. This report is unaudited.

COMMUNICATIONS SATELLITE

Year Ended Dec. 31

1969 1968

5th Qtr Earnings \$7.71 \$6.68

Revenue 47,024,000 30,495,000

Earnings 1,712,000 6,841,000

A-Assumes full dilution, as reported by company. The above figures include results of the recently acquired combined Paper Mills Inc., on a pooling-of-interests basis.

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Earnings 7,484,000 8,247,000

ELTRA CORP.

Year Ended Sept. 30

1969 1968

5th Qtr Earnings \$2.88 \$2.80

Revenue 436,772,379 420,588,854

Earnings 22,589,363 22,148,357

3 Mo Shr 2.88 2.80

Revenue 436,772,379 420,588,854

Earnings 22,589,363 22,148,357

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3 Mo Shr .93 1.03

SCIENTIFIC-ATLANTA INC.

Six Months Ended Dec. 31

1969 1968

5th Qtr Earnings \$2.02 \$2.21

Revenue 9,375,481 6,818,874

Earnings 1,698,145 1,451,711

A-Assumes full dilution, as reported by company. The above figures include results of the recently acquired combined Paper Mills Inc., on a pooling-of-interests basis.

COMMUNICATIONS SATELLITE

Year Ended Dec. 31

1969 1968

5th Qtr Earnings \$2.02 \$2.21

Revenue 9,375,481 6,818,874

Earnings 1,698,145 1,451,711

A-Assumes full dilution, as reported by company. The above figures include results of the recently acquired combined Paper Mills Inc., on a pooling-of-interests basis.

COMMUNICATIONS SATELLITE

Year Ended Dec. 31

1969 1968

5th Qtr Earnings \$2.02 \$2.21

Revenue 9,375,481 6,818,874

Earnings 1,698,145 1,451,711

A-Assumes full dilution, as reported by company. The above figures include results of the recently acquired combined Paper Mills Inc., on a pooling-of-interests basis.

COMMUNICATIONS SATELLITE

Year Ended Dec. 31

1969 1968

5th Qtr Earnings \$2.02 \$2.21

Revenue 9,375,481 6,818,874

Earnings 1,698,145 1,451,711

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Year Ended Dec. 31

1969 1968

5th Qtr Earnings \$2.02 \$2.21

Revenue 9,375,481 6,818,874

Earnings 1,698,145 1,451,711

HEWLETT-PACKARD CO.

Three Months Ended Jan. 31

1970 1969

5th Qtr Earnings \$4.44 \$4.42

Revenue 8,237,000 7,154,000

Earnings 1,506,000 1,342,000

A-Assumes full dilution, as reported by company. The above figures include results of the recently acquired combined

Nickels and Dimes

DEARBORN COMPUTER AND MARINE, Chicago-based leasing and offshore oil drilling company, posted a hefty rise in revenues for the first quarter, from \$5.9 million to \$9.5 million, but the company's profits dropped to \$727,000 from \$766,000. On a per share basis it looks even worse; last year's first quarter net was 72 cents, or 61 cents fully diluted, and this year's was 47 cents, or 43 cents diluted. The oil side of the business seems to account for the slimmer margins.

S S S
Capital bugged at **HONEYWELL**, as the company files with the SEC to offer 600,000 common shares, about 4% of Honeywell's outstanding common. Eastman Dillon heads the underwriting syndicate. Honeywell is also negotiating for a \$100 million line of credit with foreign banks. Honeywell has been selling for \$155-\$130, so the total value of the common offering comes to over \$75 million.

S S S
Run it through once again department: **Sandford Computer and Computer Data Applications** will finance rather than sell **COMMUNITY** key-to-type units as previously reported in this column. It's a third party leasing arrangement, which was the cause of the confusion, but **Community** will still do the marketing. **Community** is also arranging new financing privately to help cure its cash-flow worries.

S S S
Frost and Sullivan's Industrial Research Division, a market research group, predicts the yearly growth rate for **MINICOMPUTERS** will be 50% and for electronic calculators 40%. These are some of the highest figures predicted yet, since apparently they extend through the next decade.

S S S
STERLING COMPUTER SYSTEMS, 70%-owned subsidiary of Sterling Electronics, has reported nine-month sales and earnings of \$2,357,000 and \$445,000 respectively, both up over last year's \$1,637,000 and \$338,000. This works out to 19 cents per share compared with 14 cents for the earlier nine months.

S S S
The six-months report at **DATRONIC RENTAL** paints a bright picture. Net operating revenue rose 11% to \$1,521,000 while profits hit \$147,000, up 29% from the year earlier period. Unfortunately, there was a 22% dilution, so that per share earnings jumped from 21 cents to 22 cents.

S S S
Stock Data Correction
Some copies of last week's **CW** carried an incorrect date on the Stock Trading Summary. The proper closing dates were March 13 for the American and New York Exchanges, and March 12 for over the counter.

Computerworld Stock Trading Summary

NEW YORK AND AMERICAN STOCK EXCHANGE CLOSING PRICES, FRIDAY, MARCH 13; OVER THE COUNTER, THURSDAY, MARCH 12

SUPPLIES & ACCESSORIES					COMPUTER SYSTEMS					WEEK	
										NET	
										CHANGE	



"Get the hell out of here, she's gonna go up!"
And boy, did she go up.

On November 13th, 1969, a single engine plane came in for a landing at Princeton Airport. Suddenly it nosed down and crashed into the ADR offices. Miraculously, no one was hurt.

The quote above came from the pilot of the plane. His prediction was correct. Gasoline splashed over the roof and walls and within seconds flames were roaring across the frame building. The photo above gives you some idea of extent of the fire and destruction. What you cannot see, however, is the remarkable story of what was saved, not lost.

ADR came through the crash, fire and flood with 95% of our software libraries intact and operable. Thanks to two of our own proprietary products, Librarian and Autoflow. We use Librarian as a source program retrieval and maintenance system. All major source programs are stored on tape in the Librarian master files. These tapes were removed from the burning building before they could be harmed. The equivalent

UNPLANNED DEMONSTRATION

of over a quarter of a million cards had been placed on Librarian tapes. It would have taken four 20-drawer file cabinets to hold this many cards. These files could never have been saved. Even though innumerable card decks and vast quantities of printer output were totally destroyed, the work they represented, safely stored on Librarian tapes, was easily rescued. The information on these tapes, including commentary on the historical development of the source programs, enabled our programmers to get back to work in a fraction of the time that would have been necessary without Librarian.

Autoflow, our computerized flowcharting and documentation system, was the second hero of our saga. Autoflow made it possible to immediately regenerate flowcharts lost in the fire. Without Autoflow, manual re-creation would have been needed.

Try to explain what this costs to the fire insurance people.

We did it the hard way, but we think our unplanned demonstration proves quite a bit. Not all accidents, mishaps and losses will be as dramatic as ours.

But you never know what will be lost, torn, mishandled or misplaced.

Librarian and Autoflow saved us inestimable time, money and effort. We never used the term before, but both products served as vital "insurance" in continuing our normal operations. But possibly in your business, this aspect is not important. After all, things like accidents and fires only happen to the other guy. For a planned, peaceful demonstration of Autoflow and/or Librarian, call or write:

Applied Data Research, Inc.

Route 206 Center, Princeton, N.J. 08540
609-921-8550. Offices in principal
U.S. and foreign cities.

